



**STEWARTS AND LLOYDS
LIMITED**

HEAD OFFICES:—

41 OSWALD STREET, GLASGOW

NILE STREET, BIRMINGHAM

L & L

Tom T. Stokes

20.2.06

TRADE



MARK

STEWARTS

AND

LLOYDS

LIMITED

TRADE



MARK

1904

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STEWARTS AND LLOYDS LIMITED

Works

Albion Tube Works, BIRMINGHAM

British Tube Works, COATBRIDGE

Climax Tool Works, AIRDRIE

Clyde Pipe Foundry, GLASGOW

Clyde Tube Works, COATBRIDGE

Clydesdale Iron and Steel Works,
MOSENDE

Clydeside Tube Works,

COATBRIDGE

Coombs Wood Tube Works,

HALESOWEN

Imperial Tube Works, AIRDRIE

Lion Tube Works, OLD HILL

Phoenix Tube Works, GLASGOW

Sun Tube Works, COATBRIDGE

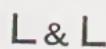
Offices and Warehouses

					Telegraphic Addresses
GLASGOW	...	...	41 Oswald Street	...	..."LAPWELD"
BIRMINGHAM	...	...	Nile Street and Coleshill Street	..."LLOYDS"	
LONDON	...	...	50 Cannon Street, E.C.	...	..."LAPWELD"
LIVERPOOL	...	...	63 Paradise Street	...	..."TUBES"
MANCHESTER	...	...	84 Deansgate	...	..."TUBES"
CARDIFF	...	...	132 Bute Street	...	..."TUBES"
LEEDS	...	...	Quebec Chambers, Quebec St.	..."LLOYDS"	

AGENTS IN ALL PARTS OF THE WORLD



TRADE MARKS



BRANDS OF STEEL



(SHIP)



(BOILER)



(FIREBOX)



(SPECIAL)

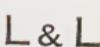
STEWARTS AND LLOYDS, LIMITED

TRADE



MARK

TRADE



MARK

MANUFACTURERS
OF

Wrought-Iron Tubes & Fittings

FOR GAS, STEAM, AIR, AND WATER.

BLACK AND GALVANIZED.

HIGH-PRESSURE HOT WATER TUBES & FITTINGS.

LAP-WELDED IRON AND STEEL TUBES.

FOR LOCOMOTIVE, MARINE, AND STATIONARY BOILERS.

MAIN STEAM PIPE INSTALLATIONS.

Tubes for ELECTRIC WIRING with specially smooth bore and rimered ends.

COLD-DRAWN AND HOT-DRAWN WELDLESS STEEL TUBES.

LOOSE FLANGE TUBES—"ALBION" & "STEWARTS" JOINTS.

WELL TUBES

WITH FLUSH OR SWELL JOINTS, ROUNDED SOCKETS OR INTERNAL
NIPPLES, STEEL DRIVING SHOES, CAPS, ETC., BORING RODS AND
FITTINGS.

Electric Welding.

CYLINDERS with Concave, Convex, or Flush ends WELDED in.

COILS of all descriptions for Refrigeration, Tuyeres, Hot Water, Steam, &c.

HYDRAULIC RAMS, MAINS, TUBES & FITTINGS.

CORE BARS, STANCHION TUBES.

LARGE TUBES—Lap-welded up to 4 feet diameter, with Flanges—
Steel or Iron—welded on, screwed or riveted on, or any other
specified joint.

ELECTRIC TRAMWAY POLES AND FITTINGS.

SIEMENS-MARTIN STEEL PLATES for Boilers, Ships, and Bridges.

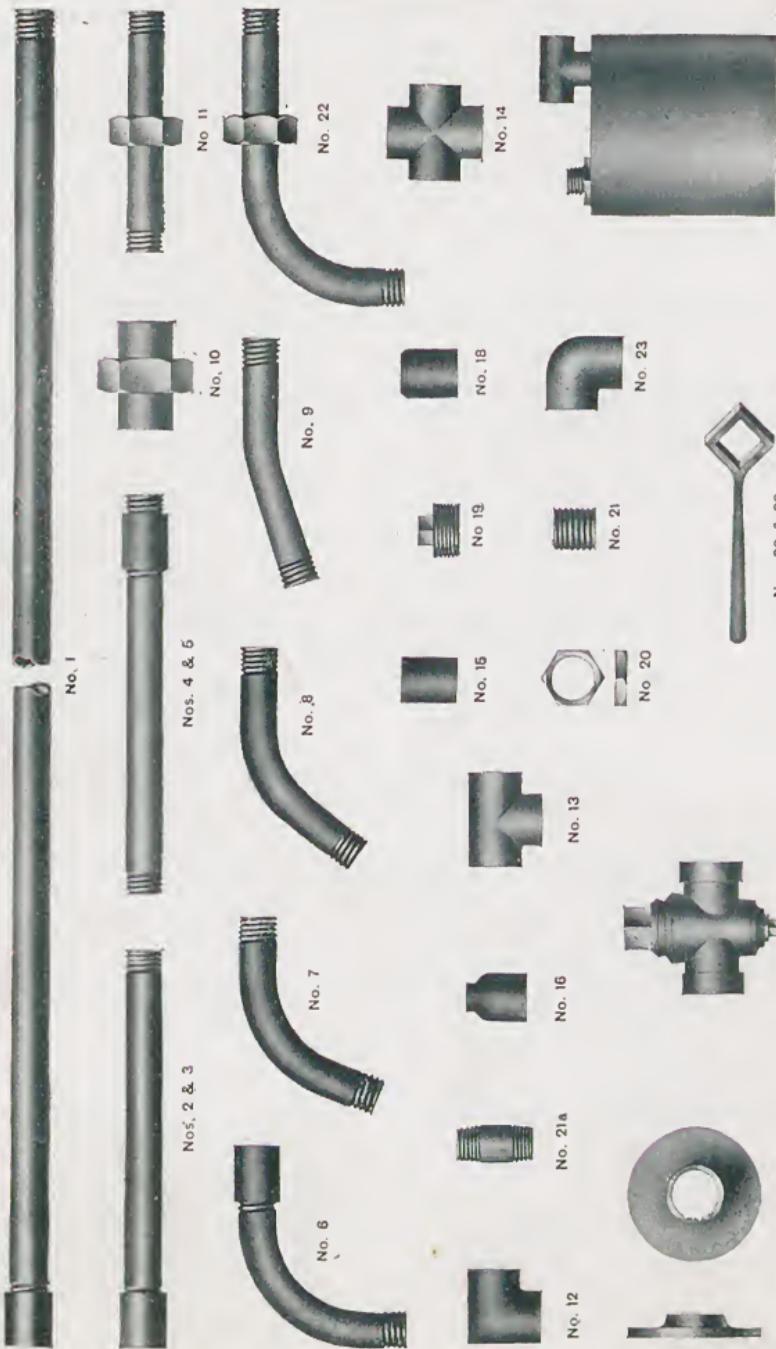
INGOTS, SLABS, Etc.



STEWARTS AND LLOYDS, LIMITED.

L & L

WROUGHT IRON TUBES AND FITTINGS FOR GAS, WATER AND STEAM.



For Angles of Springs and dimensions of Fittings generally, see pages 24, 25, 26, and 27.

WROUGHT-IRON TUBES AND FITTINGS

FOR GAS, WATER AND STEAM.

SONNLL

SEE NOTES ON FOLLOWING PAGES.



Notes on Tubes.

Tubes cut to exact lengths are charged $2\frac{1}{2}\%$ less gross discount.

No extra for Tubes over 2 feet ordered as "about" (i.e., allowing a margin of 3" either way.)

Tubes in random lengths, not screwed, have an extra allowance of $2\frac{1}{2}\%$ off the Net.

Tubes cut to exact lengths, and not screwed, are charged as Tubes screwed and socketed in random lengths.

Tubes screwed and sent without sockets have an extra allowance of $1\frac{1}{4}\%$ off the Net.

All short lengths under 2 feet to be considered Pieces.

Tubes of intermediate diameters are charged at the next higher price.

Tubes screwed and socketed with right and left hand threads are charged at $2\frac{1}{2}\%$ less gross discount.

Tubes screwed to "butt" with rounded sockets are charged at $2\frac{1}{2}\%$ less gross discount.

Special painting of Tubes, $\frac{1}{8}$ " to $\frac{1}{2}$ " diam., 5/- per 1,000 feet; $\frac{3}{4}$ " to $1\frac{1}{2}$ ", 7/6 per 1,000 feet; $1\frac{3}{4}$ " to $2\frac{1}{4}$ ", 10/- per 1,000 feet; $2\frac{1}{2}$ " and $2\frac{3}{4}$ ", 12/6 per 1,000 feet; 3" and $3\frac{1}{2}$ ", 15/- per 1,000 feet; 4" and $4\frac{1}{2}$ ", 17/6 per 1,000 feet; 5" and $5\frac{1}{2}$ ", 20/- per 1,000 feet; 6", 22/6 per 1,000 ft. All Net prices.

Tubes coated inside and outside with Dr Angus Smith's or other solution are charged at $2\frac{1}{2}\%$ less gross discount.

Orders not amounting to £2 net value will be sent Carriage Forward.

Galvanizing renders Tubes extremely durable but somewhat brittle, and the iron is not suitable for bending after being galvanized. The Zinc used in Galvanizing being entirely free from Lead, there can be no danger of lead-poisoning.

All Tubes are carefully tested by Hydraulic pressure.



STEWARTS AND LLOYDS, LIMITED.

L & L

Dates on Tubes—CONTINUED.

DIMENSIONS AND WEIGHTS OF TUBES.

INTERNAL DIA., Nominal... ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
EXTERNAL DIA., Measurement, ins.	$\frac{13}{32}$	$\frac{17}{32}$	$\frac{21}{32}$	$\frac{25}{32}$	$\frac{11}{16}$	$1\frac{1}{16}$	$1\frac{11}{32}$	$1\frac{29}{32}$	$2\frac{5}{32}$	$2\frac{3}{8}$	$2\frac{5}{8}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$
Thickness, Gas Tubes,																				
Wire Gauge No.	14	14	13	12	11	10	9	8	8	8	7	7	7	7	7	7	7	7	7	
Thickness, Steam Tubes,																				
Wire Gauge No.	12	12	11	10	9	8	7	6	6	5	5	5	5	5	5	5	5	5	5	
Approx. Weight, Gas, lbs. per ft.	0.276	0.383	0.585	0.816	1.165	1.656	2.367	2.980	3.406	3.790	4.660	5.335	5.807	6.310	7.287	8.227	9.303	10.316	11.322	12.326
Approx. Weight, Steam, lbs. per ft.	0.338	0.478	0.713	0.986	1.422	2.038	2.863	3.539	4.052	4.931	5.481	6.364	6.934	7.535	8.702	9.843	11.115	12.325	13.526	14.725
Length of Screw on Tubes ... ins.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{3}{4}$	2
Pitch of screw, No. of Threads per in.	28	19	19	14	14	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

To ascertain weights of Galvanized Tubes, add 5% to 8% to the weights of Black Tubes,

varying with the size of Tube.

To obtain weight of Tubes in Kilos per Metre, multiply weight in lbs. per foot by 1.488.



Notes and Extras.

LONGSCREWS AND SHORTPIECES

are always sent assorted "under," i.e., from 3 to $11\frac{1}{2}$ inches long, unless otherwise specified on the order. Backnuts are not sent with Longscrews unless specially ordered, and are then charged at List price. Longscrews cannot be conveniently made shorter than twice the length of sockets.

SPRINGS

can be made to any required obtuse angle, but unless otherwise specified they are generally sent assorted of the 3 angles shewn on pages 24 and 26.

Sockets are not sent with Springs unless specially ordered, when they are charged extra at List Prices.

Contents or length of tube in Springs same as for Bends.—See page 9.

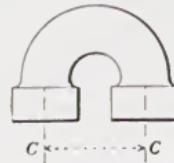
WROUGHT IRON DOUBLE BENDS.

No. 6a. Illustrated on pages 9, 25, and 27.

INTERNAL DIARS. INS.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	4	
OF STANDARD DIMNS.														
—See p. 9—	PRICE EN.	1/-	2/-	3/-	5/-	6/-	8/-	10/-	17/-	24/-	30/-	36/-	50/-	65/-

Wrought Iron Double Bends of special dimensions will be quoted for on receipt of specification.

MALLEABLE CAST DOUBLE BENDS.



No. 6b

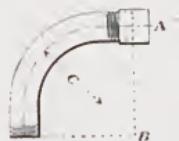
INTERNAL DIARS. INS.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	4		
ST'ND'R'D DIMNS price en.	3/-	4/-	6/-	8/-	8/-	10/-	12/-	13/-	13/-	18/-	22/-	24/-	32/-	44/-	60/-
CENTRE TO CENTRE INS.	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{2}$	$3\frac{1}{4}$	$4\frac{1}{8}$	$4\frac{1}{8}$	$4\frac{1}{8}$	$4\frac{1}{8}$	$4\frac{1}{8}$	$4\frac{1}{8}$	5	$5\frac{1}{8}$	7	$9\frac{1}{8}$	

Bends with other centre measurements than those given above will be quoted for on receipt of specification.

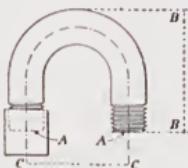
These are a substitute for Wrought Iron Double ends where the latter could not be bent so closely.



WROUGHT IRON BENDS AND DOUBLE BENDS.



BENDS. No. 6



DOUBLE BENDS. No. 6a

SIZE ins.	CONTENTS of Bends (and Springs) A to A	DISTANCE A to B	RADIUS C
1/8	3 3/4	2 1/8	1 1/4
1/4	4 1/4	2 1/2	1 5/8
3/8	5	2 7/8	1 7/8
1/2	5 1/2	3 1/4	2 1/4
3/4	6 3/4	4	2 7/8
1	8	4 3/4	3 1/2
1 1/4	10 1/4	6	4 1/4
1 1/2	11 3/8	6 3/4	5
1 3/4	11 7/8	7 1/8	5 1/2
2	13 3/8	8	6 1/4
2 1/4	14 3/4	8 7/8	7
2 1/2	16 1/4	9 3/4	7 3/4
2 3/4	17 5/8	10 5/8	8 1/2
3	19	11 1/2	9 1/8
3 1/2	22	13 1/4	10 5/8
4	24 3/4	15	12 1/8
4 1/2	27 5/8	16 3/4	13 5/8
5	40 1/4	24	18
5 1/2	42 5/8	25 1/2	19 1/2
6	45	27	21

SIZE ins.	CONTENTS A to A	DISTANCE B to B	CENTRESS C to C
1/8	4 5/8	2	1 3/4
1/4	5 5/8	2 1/2	2
3/8	6 1/4	2 3/4	2 1/2
1/2	8	3 1/2	3 1/4
3/4	9	4	3 1/2
1	10 5/8	4 3/4	4 1/4
1 1/4	11 1/8	5 1/8	4 1/2
1 1/2	13 1/4	6	5 1/2
1 3/4	13 5/8	6 1/4	5 3/4
2	15	7	6
2 1/4	16 1/4	8 1/2	8 1/2
2 1/2	20 1/2	9	9 1/2
2 3/4	21 1/2	9 1/2	10
3	25 3/8	11	12
3 1/2	25 1/2	11	13
4	28 1/2	12 1/4	15
...
...
...
...



Notes on Bends and Bending.

Wrought Iron or Mild Steel Lap-welded Tubes can be safely bent, if required, to a radius not less than 3 times their bore, provided they are thick enough to withstand the "collapsing" or "buckling" action which tends to take place during the process.

Tubes to be bent should be packed with sand or some other non-expansive substance which will withstand the required heat, and will tend to reduce the liability to flatten.

Bends can be made to a shorter radius than 3 times their bore, but when so required they should be referred—on a drawing or specification—to Makers before acceptance.

Bends above 8", being made by a special process, can be bent to any radius within reason.

Nothing is more effective for Expansion purposes than Bent Tubes, which, however, should not be of too great a "sweep," and a radius of four times the bore of the Tube will be found very satisfactory, not only for "elasticity" but as permitting a "free flow" of the contents of Tube.

The length of the "leg" or "centre to face" dimension of a Bend should exceed the radius by rather more than the screwed part—say by about half the bore of the Bend.



LONGSCREWED BENDS.



These are charged at same prices as ordinary Bends (No. 6)—see page 5—but at 15% less gross discount.

DIMINISHED ELBOWS, TEES & CROSSES

are charged at the prices of their largest diameters.

SOCKETS.

All plain Sockets are screwed straight through the barrel.

There is no difference whatever between ordinary plain Sockets and those used on Longscrews, &c.

Screwed with “Right and Left” hand threads, discount is reduced 2½%.

Screwed with “Right and Left” hand threads and chambered, discount is reduced 5%.

Extra long Sockets are charged at special prices.

Plain Hexagon Sockets are charged as follows:—

SIZE Ins.	1/8	1/4	3/8	1/2	5/8	1	1 1/4	1 1/2	1 3/4	2
PRICE, ea.	1 1/2d	1/-	1/1	1/3	1/7	2/7	3/5	4/11	6/5	6/11
SIZE Ins.	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	5 1/2	6
PRICE, ea.	8/-	9/10	12/-	14/2	20/9	25/7	35/3	43/2	52/-	60/9

FLANGES.

DIAMETERS OF TUBES		ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	
DIAMETERS OF FLANGES		ins.	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	$5\frac{3}{4}$	6	$6\frac{1}{2}$	7	$7\frac{1}{4}$	$7\frac{1}{2}$	8	9	$9\frac{1}{2}$	10	$10\frac{1}{2}$	11	
GAS	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{11}{32}$	$\frac{11}{32}$	$\frac{3}{8}$	$\frac{13}{32}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$
WATER	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{11}{32}$	$\frac{11}{32}$	$\frac{3}{8}$	$\frac{13}{32}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	
STEAM	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{11}{32}$	$\frac{11}{32}$	$\frac{11}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	$\frac{13}{32}$	$\frac{3}{8}$	$\frac{13}{32}$	$\frac{13}{32}$	$\frac{1}{2}$	$\frac{17}{32}$	$\frac{9}{16}$	$\frac{17}{32}$	$\frac{9}{16}$	

Flanges of larger diameters than the standard are charged at the prices of the sizes which have the required diameters.

Gas and Water Flanges are "faced" on the Bosses only.

Steam Flanges are "faced" on the bosses and front and "turned" on the edges.

Flanges are not drilled unless specially ordered. For particulars of drilling see pages 24 to 27.

Bolt holes are usually $\frac{1}{16}$ " larger than the Bolts.

Extra thick Flanges at special prices.

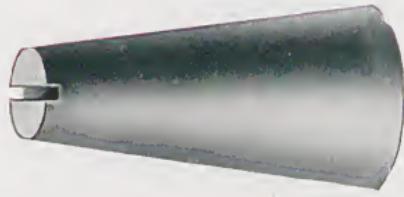
L & L

STEWARTS AND LLOYDS, LIMITED.

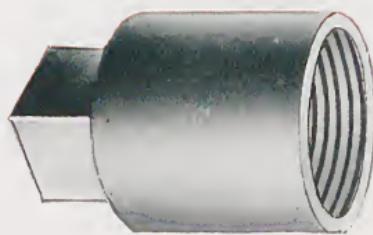
SPECIAL CAPS.



No. 18
BAYONET CAP



No. 18b
SLOTTED CAP



No. 18c
SQUARE HEADED CAP

DIAMETER OF TUBE	...	...	ins.	1/2	3/4	1	1 1/4	1 1/2	2
BAYONET CAP...	"	"	each	...	3/5	1/6	2/6	3/6	...
SLOTTED CAP...	"	"	"	1/3	1/3	1/6	2/6	3/6	4/7
SQUARE HEADED CAP	...	...	"	1/2	1/2	1/6	2/6	3/6	4/7





STEWARTS AND LLOYDS, LIMITED.

L & L

PLUGS, NIPPLES, Etc.

Plugs from $\frac{1}{8}$ " to $\frac{1}{2}$ " diameter are sent "SOLID," and from $\frac{3}{4}$ " to 6" "HOLLOW."
Gas plugs over $\frac{1}{2}$ " diameter required SOLID are charged at Steam prices.

NIPPLING, NIPPLES, AND BARREL NIPPLES.

DIAMETER OF TUBES ...	... ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Standard Length of NIPPLES	ins.	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	$3\frac{1}{2}$
Standard Length of BARREL NIPPLES	"	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{2}$	$5\frac{1}{2}$	

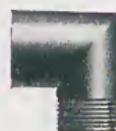
Nippling is charged in accordance with the number of standard length Nipples
in the lengths supplied.



Notes and Extras

WROUGHT-IRON TEES AND ELBOWS

SCREWED MALE AND FEMALE.



INTERNAL DIAM. OF TUBE ins.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
TEES, screwed Male & Female, each	1/6	1/9	2/	2/5	3/5	4/8	6/	7/6	10/2
SQUARE ELBOWS do. do. ,,	1/6	1/8	1/11	2/5	3/3	4/6	5/8	7/2	9/5
ROUND ELBOWS do. do. ,,	1/9	1/11	2/2	2/8	3/8	5/.	6/	7/6	9/9

NUTS.

All Nuts are faced and are Hexagon.

If required Octagon they are charged at the price of two sizes larger.

MAIN COCKS.

Main Cocks are not "stopped" unless specially ordered so.

An extra charge is made for "stopped" Cocks, when required.

HOOKS.



No. 33a



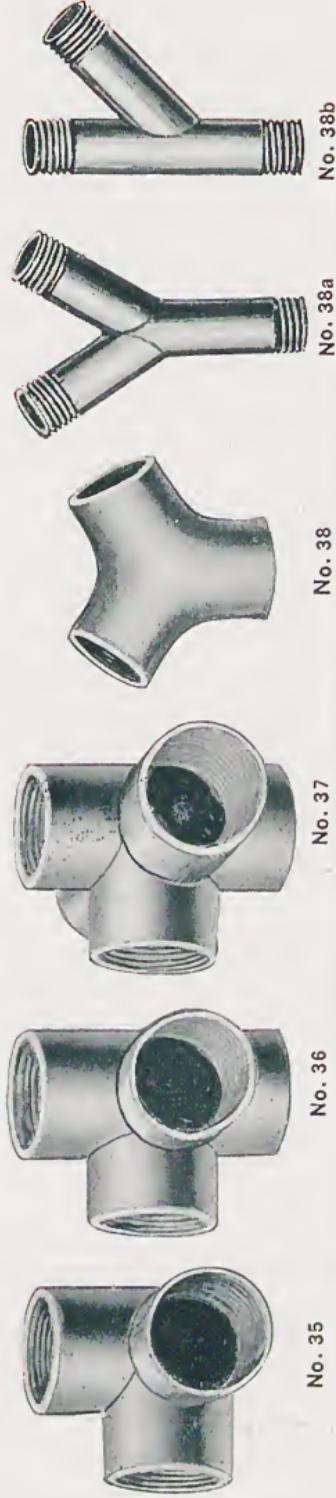
No. 33b

No.	DIAM. OF TUBE ins.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
33a	PIPE HOOKS, Black per gr.	2/11	3/4	4/5	6/3	7/6	10/.	12/6	17/6	22/6	30/.	42/6
33b	WALL HOOKS, Black ,,	9/2	10/10	12/1	14/2	16/8	20/.	25/.	30/.	42/6	57/6	70/.

STEWARTS AND LLOYDS, LIMITED.

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WROUGHT IRON SPECIAL FITTINGS.



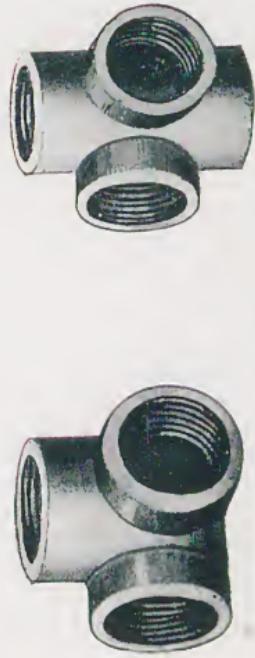
No. 35		No. 36		No. 37		No. 38		No. 38a		No. 38b	
No.	DIAM. OF TUBE INS.										
35	ANGLE ELBOWS	each	7/-	9 6	12/-	14 6	17/-	23/-	27/-	34 3	41/-
36	ANGLE TEES ...	"	8/-	11 1	14/-	16/-	19/-	26 6	31/-	39 3	46 3
37	FIVE-WAY PIECES	"	9/-	12/-	15/-	18/-	21 6	29/-	33 6	44 6	53/-
38	Y PIECES ...	"	6/-	6 3	7 6	10/-	12/-	15 6	16/-	24/-	32/-
38a	"	"	"	22 6	25/-	27 6	33/-	37 6	43 6	44 6	67/-
38b	"	"	"	26 9	30/-	33 6	38/-	42/-	49/-	50/-	72/-

 S & L

STEWARTS AND LLOYDS, LIMITED.

L & L

MALEABLE IRON FITTINGS.



No. 275



No. 276



No. 278



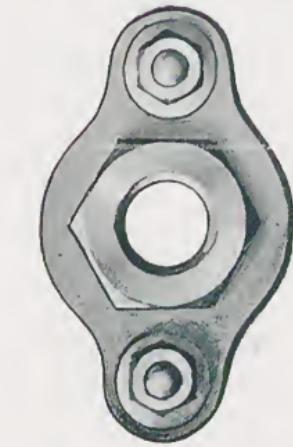
No. 34

No.	DIA.METER OF TUBE	...	...	...	ins.	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
275	ANGLE ELBOWS	...	...	...	each	...	5d	8d	1/2	1/7	2/1	3/9	5/9	
276	ANGLE TEES	...	...	...	"	...	7d	10d	1/4	1/9	2/4	4/	6/	
278	Y PIECES	...	...	...	"	...	...	...	1/8	2/3	3/6	5/	7/6	
34	ROUND ELBOWS	...	...	...	"	6 1/2 d	6 1/2 d	7d	8d	1/2	1/9	2/3	3/6	

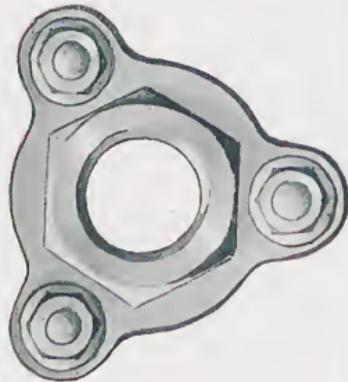
L & L

STEWARTS AND LLOYDS, LIMITED.

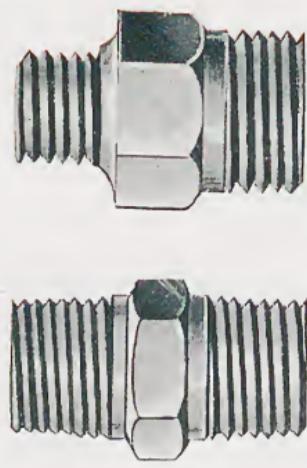
MALLEABLE IRON STEAM FITTINGS
SUITABLE FOR STEAM JOINTS.



No. 250



No. 251



No. 252

No. 252a

No.	INTERNAL DIAMETER OF TUBE ...	Ins.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$	3	4
250	TWO BOLT UNIONS ...	each	... $\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{2}{7}$	$\frac{2}{11}$	$\frac{3}{2}$	...	...	...	...
251	THREE " "	...	... $\frac{1}{8}$	$\frac{1}{9}$	$\frac{2}{4}$	$\frac{2}{9}$	$\frac{3}{3}$	$\frac{3}{6}$	$\frac{6}{6}$	$\frac{9}{6}$	$\frac{14}{6}$	...
252	HEXAGON NIPPLES ...	...	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}\frac{d}{d}$	$4\frac{1}{2}\frac{d}{d}$	$6\frac{d}{d}$	$9\frac{d}{d}$	$1\frac{1}{11}$	$2\frac{9}{9}$	$3\frac{3}{3}$	$5\frac{6}{6}$
252a	REDUCING HEXAGON NIPPLES ...	...	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}\frac{d}{d}$	$4\frac{1}{2}\frac{d}{d}$	$6\frac{d}{d}$	$9\frac{d}{d}$	$1\frac{1}{11}$	$2\frac{9}{9}$	$3\frac{3}{3}$	...

Prices of Unions include Bolts, Nuts and Joint Washers.

**Price List for GLASS ENAMELLING, inside only or outside only,
Wrought-iron Tubes and Fittings.** (Additional to prices on Trade Price List, page

(Additional to prices on Trade Price List, page 5.)

NOTE.—The Tubes are specially screwed so that they practically butt in the centre of socket, and still make a tight joint.

PRICES FOR WHITE ENAMELLING (INSIDE ONLY) ARE DOUBLE THE ABOVE PRICES.



STEWARTS AND LLOYDS, LIMITED.

L & L

**Price List for GLASS ENAMELLING, both inside and outside, wrought-iron
Tubes and Fittings.**

(Additional to prices on Trade Price List, page 5.)

No.	INTERNAL DIAMETER	...	... ins.	3/8	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	5 1/2	6	
TUBES																						
1	Tubes, 2 to 9 ft. long, sqrd. not coupled, per ft.	5 1/2d	6d	7d	8d	9d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.		
2	Pieces, 12" to 23 1/2" long	do.	each	6d	8d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	
3	Pieces, 4" to 11 1/2" long	do.	do.	1r.	2 1/2d	3 1/2d	5d	6 1/2d	8d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	
4	Long screws, 12" to 23 1/2" do.	do.	do.	1r.	6d	8d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	
5	Long screws, 3" to 11 1/2" do.	do.	do.	1r.	2 1/2d	3 1/2d	5d	6 1/2d	8d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	
6, 7, 8, 9	Bends and Springs	do.	do.	1r.	1 1/2d	2 1/2d	4 1/2d	8d	1r.	1/2	1/6	1r.	10/10	2/4	2/6	3/	3/8	4/3	5/7	7/3	8/3	15/4 17/7
FITTINGS																						
10, 11	Socket and Pipe Union	...	...	each	3d	5d	6 1/2d	10 1/2d	1r.	3/	1r.	1r.	2/1	2/4	2/6	3/2	3/4	3/7	5/5	9/3	...	...
12	Elbows, Square	...	...	1r.	1 1/2d	2d	3d	4 1/2d	7 1/2d	9 1/2d	1r.	1/2	1r.	1/5	1r.	1/8	2/	2/6	2/8	4/	5/	10/7 10/10 1/12/
13	Tees ...	...	...	1r.	1 1/2d	2d	4d	5d	8 1/2d	1r.	1/5	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.
14	Crosses ...	...	...	1r.	2d	3d	5d	6 1/2d	10 1/2d	1r.	1/2	1r.	1/9	2/3	2/6	2/9	3/8	3/9	6/3	8/5	9/3	10/14/9
18	Caps ...	...	...	1r.	1r.	1 1/2d	2d	3d	4 1/2d	7d	8d	10d	1r.	1/4	1r.	1/6	2/	2/6	3/1	3/3	4/5	4/8 5/6
21a	Double or Barrel Nipples	...	...	1r.	1 1/2d	2d	3d	4 1/2d	7 1/2d	1r.	1r.	1r.	1/7	2/4	3/5	3/11	4/8	4/9	6/2	7/10	1r.	1/8 2/2
22	Union Bends	...	...	1r.	4 1/2d	7 1/2d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.
23	Elbows, Round	...	...	1r.	1 1/2d	2d	3d	4d	7 1/2d	9 1/2d	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.	1r.

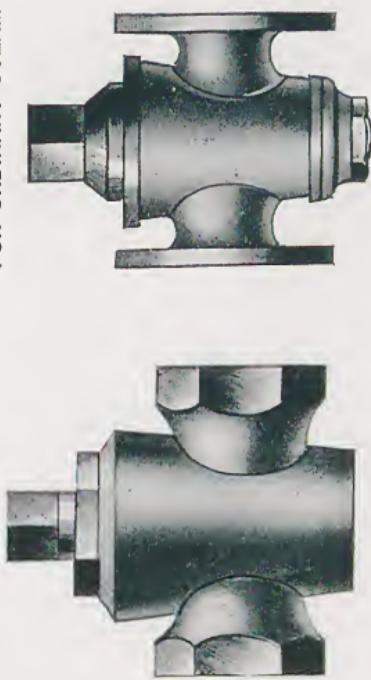
NOTE.—The Tubes are specially screwed so that they practically butt in the centre of socket, and still make a tight joint.

L & L

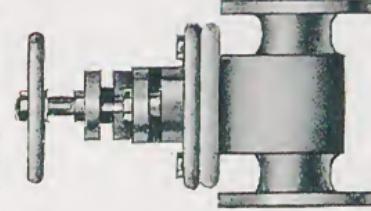
STEWARTS AND LLOYD'S, LIMITED.

IRON PLUG COCKS AND WHEEL VALVES

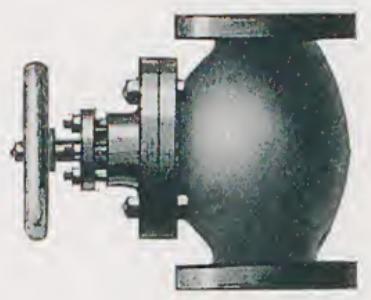
FOR ORDINARY STEAM AND WATER PRESSURES.



No. 39



No. 264



No. 448

No.	INTERNAL DIAMETER	...	...	...	...	...	...	ins.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	5	6		
39	SOLID BOTTOM ROUND WAY COCKS—Iron Plug	...	4/-	5/-	6/-	8/-	11/-	15/-	18/-	20/-	29/-	34/-	42/-	48/-	56/-	75/-	...	...	...	...	...	...	...	...	...
39a	DO.	G. M. Plug	5/-	5/6	7/6	12/6	17/6	24/-	29/-	30/-	41/-	53/-	60/-	80/-	110/-	140/-	...	...	...	...	...	...	...	...	...
264	FLANGED IRON PLUG COCKS—Nut & Washer Bottom	...	...	...	...	...	...	...	...	21/-	26/-	37/-	...	50/-	65/-	81/-	140/-	242/-	...	...	...	...	...	...	...	...
436	FLANGED IRON PEET'S VALVES—G. M. Working Parts	...	...	...	...	18/-	21/-	25/-	...	28/-	...	31/-	...	39/-	50/-	58/-	78/-	100/-	...	...	...	...	...	...	...	...
448	FLANGED STEAM STOP VALVES—	do,	do,	do,	33/-	...	40/-	...	59/-	60/-	70/-	96/-	125/-

Unless otherwise specified Solid Bottom Cocks are sent with Iron Plugs.



STEWARTS AND LLOYDS, LIMITED.

L & L

STEAM EXPANSION JOINTS.

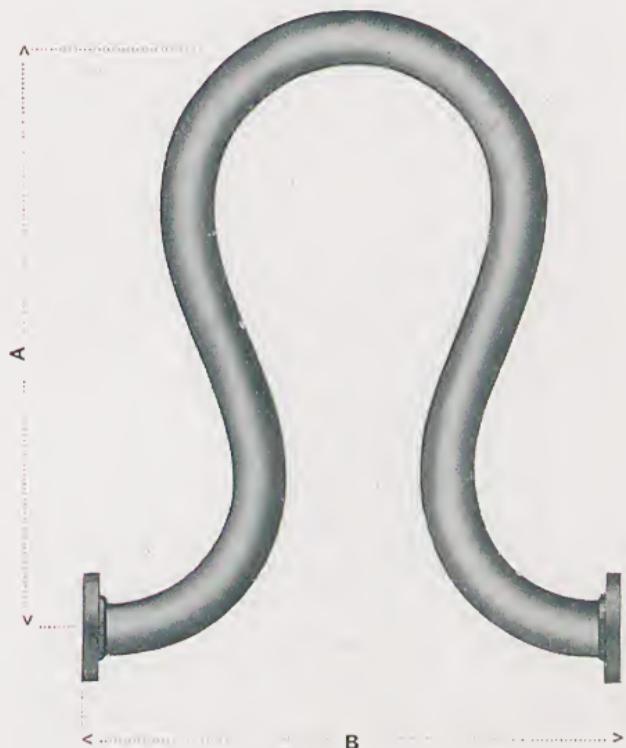


NOMINAL INTERNAL DIAMETER OF TUBES	... ins.	2	2½	3	3½	4	5	6	7	8	9	10
Approximate Overall Dimensions when joint is extended " amount of Expansion allowed for	... "	18	19	21	21½	23	25	28½	30	33	36	39
"	"	3½	3½	4	4	4½	4¾	5½	5½	5½	6	6
PRICE	35/-	42/-	52/-	62/-	69/-	94/-	110/-	131/-	163/-	181/-	210/-

The above are brass lined, and are not fitted with Tie Bolts unless specially ordered and at enhanced prices.



STEAM EXPANSION BENDS.



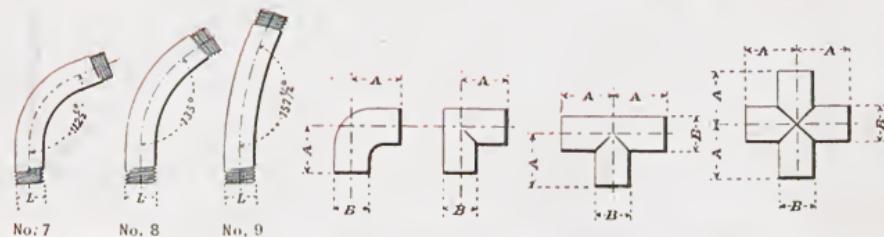
SIZE ...	inches	2	2½	3	3½	4	5	6	7
A ins.		24	28	30	34	39	48	60	72
B ,		24	27	30	35	40	50	58	64
PRICE ... each		47/-	66/-	86/-	108/6	132/-	233/-	429/-	717/-

These bends, where convenient, should be fixed horizontally.

This form of Expansion Joint is preferable to the Stuffing Box pattern, shown on page 22.



Dimensions

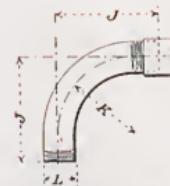
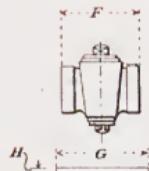
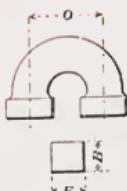
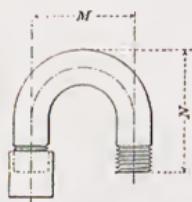


		SIZE, ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
A	C to F of Elbows, Tees & Crosses	GAS ins.	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{8}$
		STEAM ,,	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
B	Outside Diam. of Elbows, Tees, Crosses & Sockets	GAS ,,	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$	$1\frac{5}{16}$
		STEAM ,,	$\frac{11}{16}$	$\frac{13}{16}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{8}$
C	Length of Nipples ...	GAS AND STEAM ... ,,	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$
D	Length of Barrel Nipples	GAS AND STEAM ... ,,	...	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
E	Length of Plain Sockets	GAS ,,	$\frac{3}{4}$	$\frac{15}{16}$	$1\frac{1}{16}$	$1\frac{1}{4}$	$1\frac{5}{8}$
		STEAM ,,	$\frac{7}{8}$	$1\frac{1}{16}$	$1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$
F	Length of Cocks (Plug)	GAS ,,	...	$1\frac{1}{8}$	$2\frac{5}{8}$	3	$3\frac{1}{2}$
G	Diam. of Flanges ...	GAS AND STEAM ... ,,	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
H	Thickness of Flanges	GAS ,,	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$
		WATER ,,	...	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$	$\frac{1}{8}$
		STEAM ,,	...	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Drilling	Pitch Circle ...	GAS, WATER & STEAM ,,	$1\frac{5}{8}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	$2\frac{7}{8}$
	Size & No. of Bolts ...	GAS AND WATER ... ,,	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$
	Size & No. of Bolts ...	STEAM ,,	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$
J	C to F of Bends ...	GAS AND STEAM ... ,,	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{4}$	4
K	Radius of Bends ...	GAS AND STEAM ... ,,	$1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{7}{8}$
L	Outside Diam. of Bends & Spring	GAS AND STEAM ... ,,	$13\frac{1}{32}$	$17\frac{1}{32}$	$11\frac{1}{16}$	$27\frac{1}{32}$	$1\frac{1}{16}$
Nos. 6,7,8,9	Contents of Bends and Springs	GAS AND STEAM ... ,,	$3\frac{3}{4}$	$4\frac{1}{4}$	5	$5\frac{1}{2}$	$6\frac{3}{4}$
M	C to C of W.I. Double Bends	STEAM ,,	$1\frac{3}{4}$	2	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{2}$
N	B to F of W.I. Double Bends	STEAM ,,	2	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{2}$	4
O	C to C of Malleable Double Bends	STEAM ... ... ... ,,	...	...	...	$1\frac{1}{2}$	$1\frac{3}{4}$

DIMENSIONS GIVEN ON THESE PAGES



of Fittings.

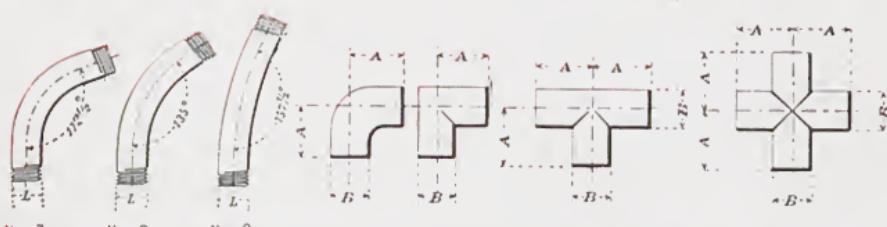


1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	5 1/2	6		
1 5/8	1 1/3	2 1/16	2 3/16	2 9/16	2 7/8	3 1/8	3 3/8	3 5/8	4	4 1/2	5	5 1/8	5 7/8	6 1/4	A	
1 3/8	1 1/8	2 3/16	2 5/16	2 11/16	3	3 1/4	3 1/2	3 5/8	4 1/8	4 3/4	5 1/4	5 1/4	6	6 1/2		
1 5/8	2	2 1/4	2 3/8	2 3/4	3 1/8	3 3/8	3 3/4	4	4 1/2	5	5 3/4	6 1/4	6 3/4	7 1/4	B	
1 5/8	2	2 1/4	2 1/2	2 1/3	3 3/16	3 7/16	3 3/4	4	4 1/2	5	5 3/4	6 1/4	6 3/4	7 1/4		
1 1/4	1 1/2	1 5/8	1 3/4	1 7/8	2 1/8	2 1/4	2 1/2	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/4	3 1/2	C	
2 1/4	2 3/8	2 1/2	2 3/4	2 3/4	3	3 1/4	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 1/2	4 1/2	5 1/2	D	
1 3/4	2	2 1/4	2 1/2	2 1/2	2 3/4	3	3 1/2	3 1/2	3 3/4	3 3/4	4	4	4 1/2	4 1/2	E	
2	2 1/4	2 1/2	2 1/2	2 3/4	2 3/4	3	3 1/2	3 1/2	3 3/4	3 3/4	4	4	4 1/2	4 1/2		
4 1/8	4 7/8	5 1/2	6 1/4	6 1/2	7	7 3/4	8 1/2	8 3/4	10 3/8	11 1/2	...	...	...	...	F
4 1/2	5	5 1/2	5 3/4	6	6 1/2	7	7 1/4	7 1/2	8	9	9 1/2	10	10 1/2	11	G	
1/4	1/4	9/16	9/16	5/16	5/16	11/32	11/32	3/8	13/32	7/16	7/16	7/16	7/16	7/16	H	
3/32	3/32	5/16	5/16	11/32	11/32	3/8	3/8	13/32	7/16	15/32	3/4	1/2	17/32	9/16		
3/4	3/4	9/16	9/16	11/32	11/32	3/8	13/32	7/16	15/32	1/2	17/32	5/8	11/16			
3/4	3/4	3/4	3/4	3/4	3/4	4 1/8	4 5/8	5 1/8	5 1/2	5 3/4	6	6 1/2	7 3/8	8 3/8	8 7/8	9 3/8
1/2 * 3	1/2 * 3	1/2 * 3	1/2 * 4	1/2 * 4	1/2 * 4	1/2 * 4	1/2 * 4	5/8 * 4	5/8 * 4	5/8 * 6	5/8 * 6	5/8 * 6	5/8 * 6	3/4 * 6	3/4 * 6	
1/2 * 4	1/2 * 4	1/2 * 4	1/2 * 4	1/2 * 6	1/2 * 6	5/8 * 6	5/8 * 6	5/8 * 6	5/8 * 6	5/8 * 6	3/4 * 6	3/4 * 6	3/4 * 6	3/4 * 6		
4 3/4	6	6 3/4	7 1/8	8	8 7/8	9 3/4	10 5/8	11 1/2	13 1/4	15	16 3/4	24	25 1/2	27	J	
3 1/2	4 1/4	5	5 1/2	6 1/4	7	7 3/4	8 1/2	9 1/8	10 5/8	12 1/8	13 5/8	18	19 1/2	21	K	
1 11/16	1 11/16	1 2 9/16	2 3/2	2 3/8	2 5/8	3	3 1/4	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	L	
8	10 1/4	11 3/8	11 7/8	13 3/8	14 3/4	16 1/4	17 5/8	19	22	24 3/4	27 5/8	40 1/4	42 5/8	45	Nos. 6,7,8,9	
4 1/4	4 1/2	5 1/2	5 3/4	6	8 1/2	9 1/2	10	12	13	15	...	...	...	...	M
4 3/4	5 1/8	6	6 1/4	7	8 1/2	9	9 1/2	11	11	12 1/4	...	...	...	...	N
2 5/8	3 3/4	4 1/8	4 1/8	4 1/8	4 3/8	4 3/8	5	5 3/8	7	9 1/2	...	...	...	...	O

REFER TO THE BIRMINGHAM WORKS



Dimensions



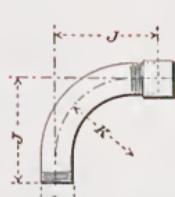
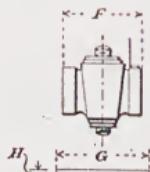
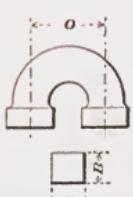
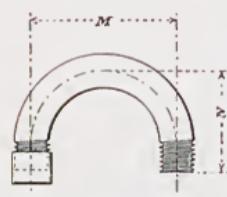
No. 7 No. 8 No. 9

		SIZE, ins.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
A	C to F of Elbows, Tees & Crosses	GAS ins.	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{3}{8}$
B	Outside Diam. of Elbows, Tees, Crosses & Sockets	GAS "	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{8}$	$1\frac{5}{8}$
C	Length of Nipples ...	GAS AND STEAM ... "	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{16}$
D	Length of Barrel Nipples	GAS AND STEAM ... "	...	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
E	Length of Plain Sockets	GAS "	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$
F	Length of Cocks (Plug)	GAS "	...	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$
G	Diam. of Flanges ...	GAS AND STEAM ... "	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
H	Thickness of Flanges	GAS " WATER " STEAM "	$\frac{1}{8}$ $\frac{1}{4}$ $\frac{7}{32}$	$\frac{1}{8}$ $\frac{1}{4}$ $\frac{1}{4}$	$\frac{5}{32}$ $\frac{13}{32}$ $\frac{1}{4}$	$\frac{3}{16}$ $\frac{7}{32}$ $\frac{1}{4}$	$\frac{7}{32}$ $\frac{1}{4}$ $\frac{1}{4}$
Drilling	Pitch Circle ...	GAS, WATER & STEAM ..	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{7}{8}$
	Size & No. of Bolts ...	GAS, WATER & STEAM ..	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{7}{8}$
J	C to F of Bends ...	GAS AND STEAM ... "	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{4}$	4
K	Radius of Bends ...	GAS AND STEAM ... "	$1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$2\frac{1}{4}$	$2\frac{7}{8}$
L	Outside Diam. of Bends and Spulings	GAS AND STEAM ... "	$13\frac{1}{32}$	$17\frac{1}{32}$	$11\frac{1}{16}$	$27\frac{1}{32}$	$1\frac{1}{16}$
Nos. 6,7,8,9	Contents of Bends and Spulings	GAS AND STEAM ... "	$3\frac{3}{4}$	$4\frac{1}{4}$	5	$5\frac{1}{2}$	$6\frac{3}{4}$
M	C to C of W.L. Double Bends	STEAM "	$1\frac{1}{4}$	2	$2\frac{5}{8}$	3	$3\frac{3}{4}$
N	C to F of W.L. Double Bends	STEAM "	$1\frac{1}{2}$	$1\frac{5}{8}$	$2\frac{3}{8}$	$2\frac{1}{2}$	3
O	C to C of Malleable Double Bends	STEAM ... ... ... "	...	...	...	$1\frac{1}{2}$	$1\frac{3}{4}$

DIMENSIONS GIVEN ON THESE PAGES



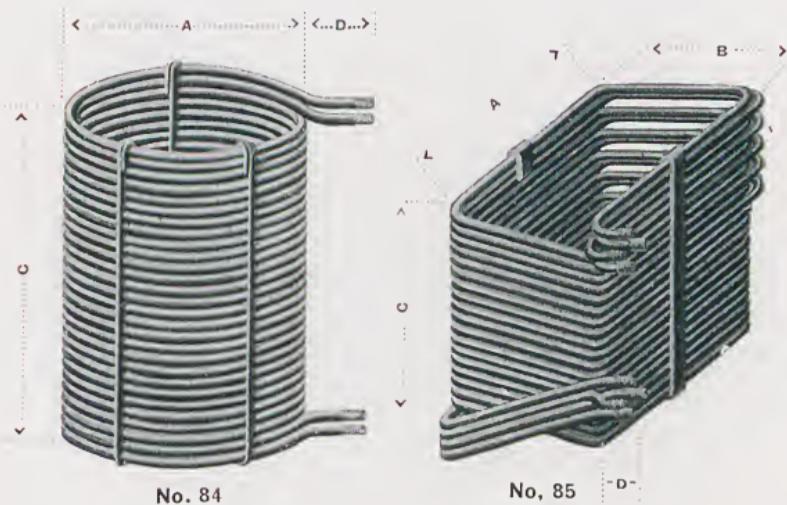
of Fittings.



	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	5 1/2	6	A
1 9/16	1 7/8	2 1/8	2 3/8	2 5/8	2 7/8	3 1/4	3 1/2	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	7	A	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	B
1 9/16	2	2 1/4	2 1/2	2 1/4	3 1/16	3 1/2	3 3/4	4	4 1/2	5	5 1/2	6 1/8	6 5/8	7 1/8	—	C
1 1/4	1 1/2	1 5/8	1 3/4	1 7/8	2 7/8	2 1/4	2 1/2	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/4	3 1/2	—	C
2 1/4	2 3/8	2 1/2	2 3/4	2 7/8	3	3 1/4	3 1/2	3 1/2	3 3/4	4 1/4	4 1/4	4 1/2	4 1/2	5 1/2	—	D
1 3/4	2	2 1/4	2 3/8	2 1/2	2 3/4	3	3	3	3 1/2	3 1/2	4 1/2	4 1/2	5	5	—	E
4	5	5 3/4	6 1/4	7	8 3/4	9 3/4	10	10	12 1/2	14 1/2	...	...	...	...	...	F
4 1/2	5	5 1/2	5 3/4	6	6 1/2	7	7 1/4	7 1/2	8	9	9 1/2	10	10 1/2	11	—	G
1/4	1/4	9/32	9/32	5/16	5/16	11/32	11/32	3/8	13/32	7/16	7/16	7/16	7/16	7/16	7/16	H
1/4	9/32	5/32	5/16	11/32	11/32	3/8	13/32	7/16	15/32	3/4	1/2	17/32	9/16	11/16	—	H
3/4	3 3/4	4 1/8	4 1/2	4 1/2	5	5 1/2	5 3/4	6	6 1/2	7 1/4	7 3/4	8 3/8	8 7/8	9 3/8	—	Drilling
1/2	3	1 1/2	1 1/2	1 1/2	4	5/8	4	5/8	4	5/8	4	5/8	6	5/8	6	J
3 1/2	4 1/4	5	5 1/2	6 1/4	7	7 3/4	8 1/2	9 1/8	10 5/8	12 1/8	13 5/8	18	19 1/2	21	—	K
1 1/2	1 1/8	1 1/8	1 3/8	2 5/32	2 3/8	2 5/8	3	3 1/4	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	L
8	10 1/4	11 3/8	11 7/8	13 3/8	14 3/4	16 1/4	17 5/8	19	22	24 3/4	27 5/8	40 1/4	42 5/8	45	Nos. 6,7,8,9	M
4 1/2	5	6	7	8	9	10	11	12	14	16	...	...	...	...	...	N
3 1/2	4 1/4	4 3/4	5 1/4	5 3/4	6 3/8	7	7 5/8	8 3/8	9 5/8	10 7/8	...	...	...	...	...	O
2 5/8	3 3/4	4 1/8	4 1/8	4 1/8	4 3/8	4 3/8	5	5 3/8	7	9 1/2	...	...	...	...	...



HIGH PRESSURE HOT WATER COILS.



These Coils are made from Perkins' Hot Water Tubes, $\frac{3}{4}$ " and 1" nominal internal diameter, and in two or more continuous lengths of Tube.

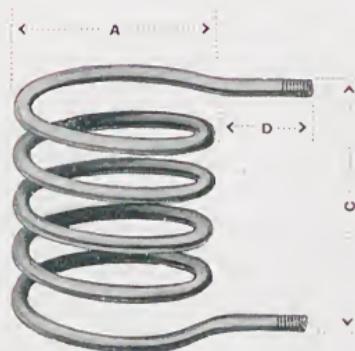
When ordering please state—

1. Diameter of Tube.
2. Outside diameter or measurement A.
3. Outside measurement B.
4. Height of Coil C.
5. Length of Arm D.
6. Number of Laps, number of Tubes, or quantity of Tube required in each Coil.

Price will be quoted on receipt of specification.



STOVE COILS.



No. 204

These Coils are generally made of steam tubes from $\frac{3}{4}$ " to 2" diameter, and are suitable for green-house and other stoves for low pressure heating work.

When ordering please state:—

1. Diameter of tube.
2. Outside diameter A.
3. Height of coil C.
4. Length of arm D.
5. Number of laps or quantity of tube required in each coil.

Price will be quoted on receipt of specification.



STEWARTS AND LLOYDS, LIMITED.

L & L

COILS FOR ICE MAKING MACHINERY.

No. 205

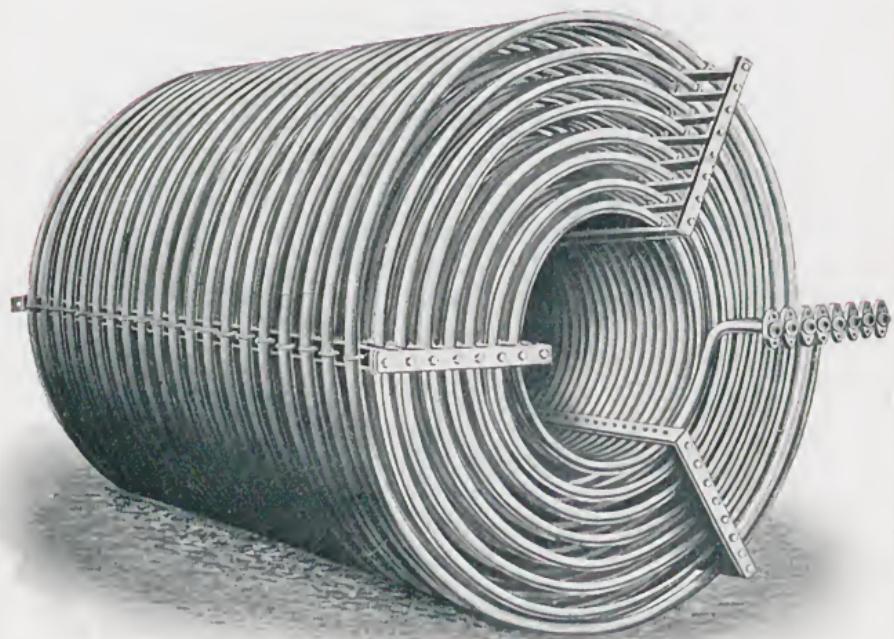
All kinds and descriptions made to order.

Price will be quoted on receipt of specification.



STEWARTS AND LLOYDS, LIMITED. L & L

COILS FOR ICE MAKING MACHINERY.



No. 206

All kinds and descriptions made to order.

Price will be quoted on receipt of specification.

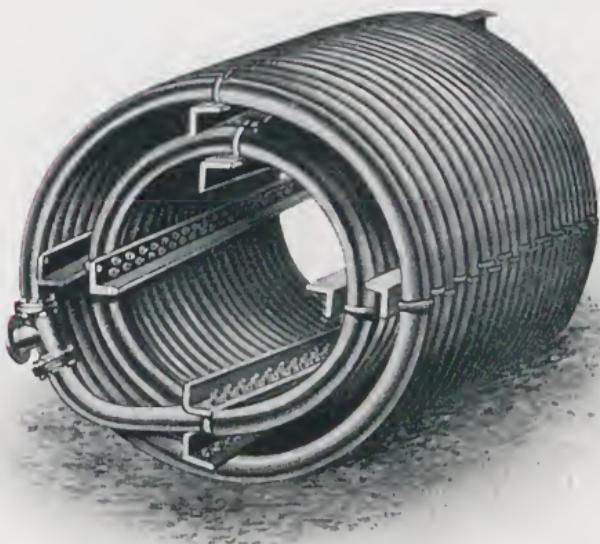


STEWARTS AND LLOYDS, LIMITED.

L & L

FEED WATER HEATER

FOR HIGH PRESSURE MARINE BOILERS.



No. 210

DOUBLE COIL OF WROUGHT-IRON TUBE.720 ft. of Tube $3\frac{3}{4}$ in. diameter. Weight, $4\frac{1}{2}$ Tons.

The above illustration shews Coil of Wrought Iron Tube, as placed in Steamer Funnel to utilize waste heat.

All kinds and descriptions made to order.

Price will be quoted on receipt of specification.



STEWARTS AND LLOYDS, LIMITED.

L & L

COILS

FOR DRYING ROOMS, GENERAL HEATING PURPOSES, ANVIL BLOCKS, &c., &c.



No. 214

All kinds and descriptions made to order.

Price will be quoted on receipt of sketch or wire model of what is required.

Diameter of Tube and dimensions of Coil to be stated.



STEWARTS AND LLOYDS, LIMITED. L & L

STEAM COILS

FOR SOAP BOILING TANKS, CHEMICAL WORKS, &c., &c.



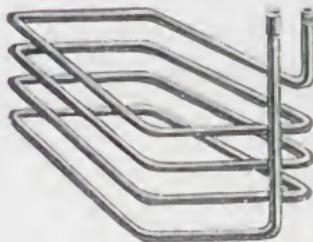
No. 217



No. 218

STEAM COILS

FOR SUGAR REFINERIES, CHEMICAL WORKS, FRUIT PRESERVING WORKS, &c., &c.



No. 221

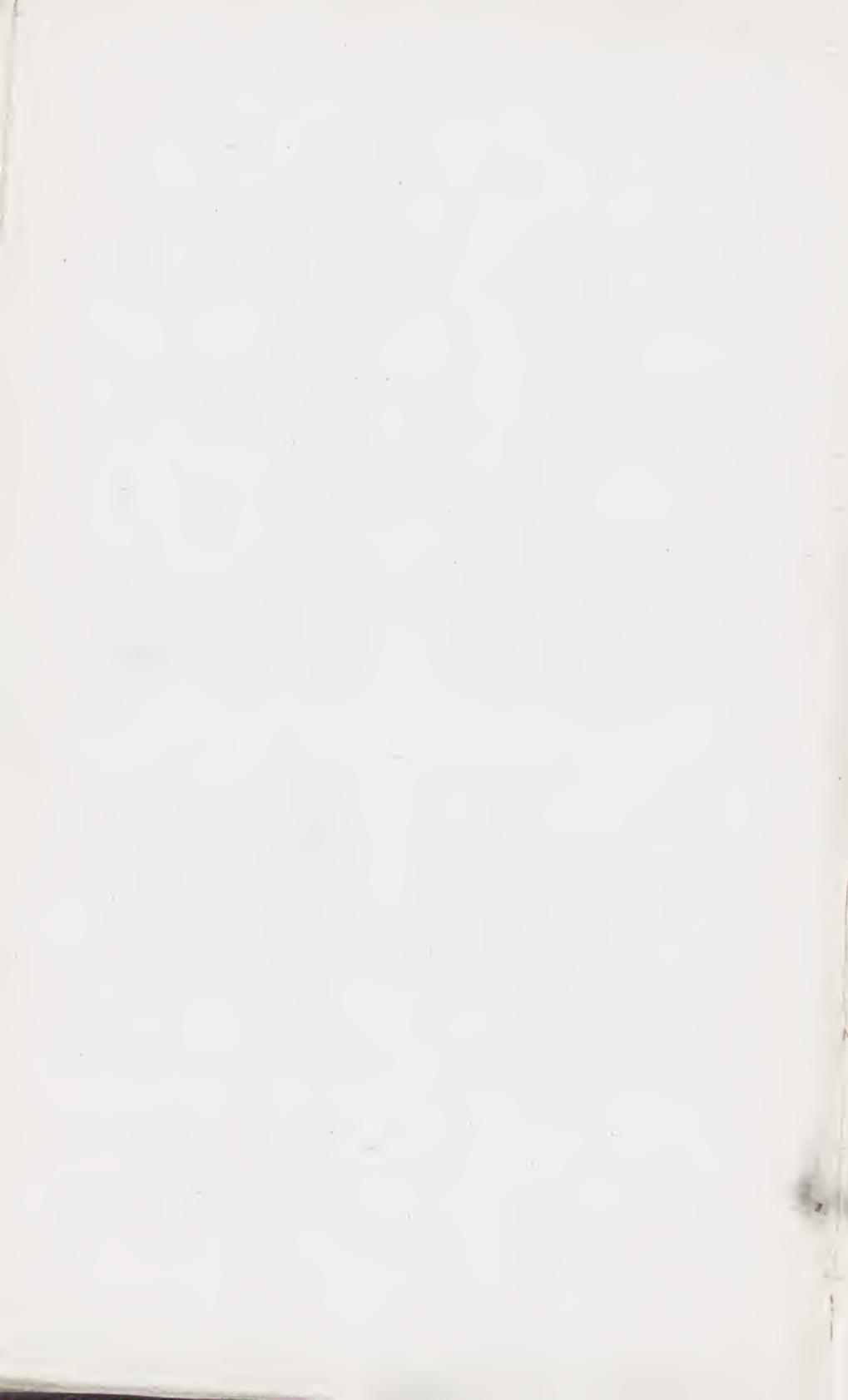


No. 222

Made in any size or shape to suit customers' requirements, and in one continuous length without screwed joint.

Price quoted on receipt of sketch or wire model of what is required.

Diameter of Tube and dimensions of coil to be stated.

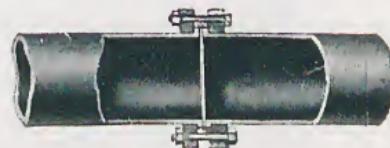
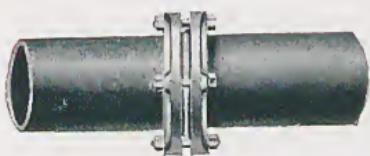




STEWARTS AND LLOYDS, LIMITED. L & L

"ALBION" LOOSE FLANGE JOINTS.

No. 430

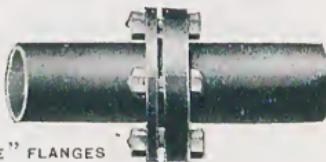
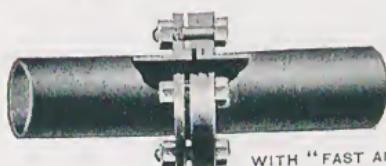


No. 431



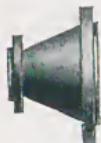
WITH "DIVIDED" FLANGES

No. 366



WITH "FAST AND LOOSE" FLANGES

REDUCING PIECE



BEND



SPRING

EXPANSION JOINT

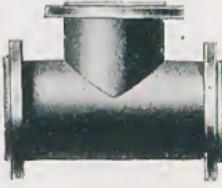


ELBOW

CONNECTING PIECE



TEE



L & L

STEWARTS AND LLOYDS, LIMITED.

"ALBION" JOINT TUBES AND FITTINGS.

LAP-WELDED WROUGHT-IRON AND STEEL TUBES—can be tested to 1000 lbs.—complete with Cast-Iron and Cast-Steel Flanges, Bolts, Nuts and Rubber Joint Rings.

Nominal Inside diameter of Tubes ... ins.	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	5	5 1/2	6	6 1/2	7	7 1/2	8	9	10*
External diameter of Tubes ... ins.	1 5/8	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 3/4	5 1/4	6	6 3/8	7	7 1/2	8	8 1/2	9 1/2	10 1/2
Thickness { in wire gauges ...	13	12	12	12	11	10	10	10	10	9	9	8	8	7	7	6	6	6	4	4	3
Thickness { in decimals of an inch ...	.092	.104	.104	.104	.116	.116	.128	.128	.128	.144	.144	.160	.160	.176	.176	.176	.192	.192	.232	.252	
Approx. weight per foot, including one joint, lbs.	2.0	2.6	3.1	3.6	4.2	4.6	5.2	5.7	6.1	6.9	7.5	9.0	10.0	12.5	13.5	14.8	18.0	19.5	20.7	27.5	35.0
Gross Price per foot of Tubes, with Single } in random Long or Divided Flanges }	1/2	1/3	1/4	1/5	1/8	1/10	2/1	2/3	2/6	2/10	3/2	4/	4/9	5/6	6/4	7/3	8/6	9/9	11/6	14/	18/6
WROUGHT IRON BENDS AND SPRINGS } each	11/-	12/-	13/-	15/-	16/6	18/-	20/-	24/-	27/-	30/-	35/-	45/-	57/6	80/-	95/-	110/-	130/-	160/-	190/-	260/-	330/-
CONNECTING PIECES } not exceeding REDUCING } 1 1/2" long,	6/-	7/-	8/-	9/-	10/-	11/-	12/-	13/-	14/-	15/6	17/-	23/-	27/-	32/-	37/-	42/-	48/-	55/-	60/-	70/-	85/-
ELBOWS, Cast Iron ...	14/-	15/6	16/6	17/6	18/6	20/-	21/6	23/-	25/-	27/6	30/-	36/-	42/-	48/-	55/-	62/-	70/-	80/-	90/-	105/-	125/-
TEES ...	20/-	21/-	22/-	23/-	24/6	27/-	29/-	31/-	6/33/6	37/-	40/-	49/-	56/-	64/-	74/-	84/-	9/-	106/-	120/-	140/-	165/-
ELBOWS, Cast Steel ...	16/-	17/-	18/-	20/-	25/-	28/-	31/-	35/-	38/-	42/-	46/-	50/-	54/-	64/-	68/-	80/-	92/-	104/-	120/-	140/-	170/-
TEES,	21/-	22/-	23/-	26/-	30/-	33/-	36/-	42/-	48/-	51/-	55/-	64/-	72/-	82/-	95/-	106/-	120/-	140/-	160/-	200/-	240/-

*Turned up ends.

Short lengths will be charged extra. The "Fast and Loose" pattern joint is subject to Special Discount.



"ALBION" JOINT TUBES AND FITTINGS.

Notes.

TUBES.—The gross discount applies to all sizes of Tubes in long lengths.

Lengths under 14 ft. are charged at $2\frac{1}{2}\%$ less gross discount for every foot or part of a foot under 14 ft.

Tubes thicker than the list gauge are charged at $2\frac{1}{2}\%$ less gross discount for every extra gauge.

CONNECTING PIECES are sent to a standard length of 12". If longer pieces are required, extra prices will be charged.

FLANGES.—If Tubes, Bends, Springs, or Connecting Pieces are fitted with Cast Steel Flanges, an extra 5% gross will be charged.

Bends, Springs and Elbows are fitted with a "Male" flange on one end and a "Female" flange on the other.

Reducers are fitted with a "Female" flange on the large end and a "Male" flange on the small end.

Tees have a "Male" flange on one end and a "Female" flange on the other end of the barrel, with a "Male" flange on the branch.

**"ALBION" JOINT TUBES AND FITTINGS.****Notes—CONTINUED.**

Flanges are "Loose" on Bends, Springs and Connectors, but are "cast on" in the case of Tees, Elbows, Crosses and Reducers, although occasionally it is found cheaper and more convenient in some special cases—where small quantities only are ordered and the pattern making would be expensive—to send with "Loose flanges."

Specially heavy Cast Steel flanges can be supplied, if required, at enhanced prices.

OVAL FLANGES can be supplied without extra charge.

VALVES, &c.—The "Inlets" are fitted with "Female" and the outlets with "Male" flanges, unless otherwise stated.

The flanges on a Footvalve or Strainer are Male.



STEWARTS AND LLOYDS, LIMITED.

L & L

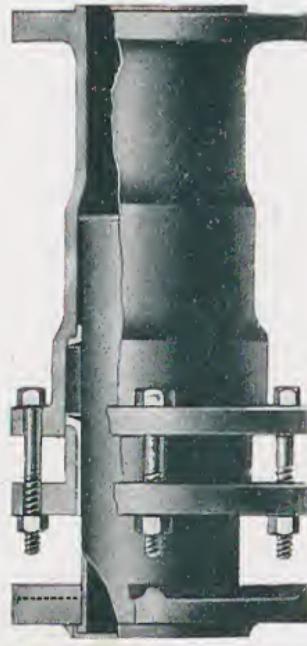
"Albion" Joint Tubes & Fittings
CONTINUED.

**"ALBION" JOINT FLANGES—CAST-IRON
AND CAST-STEEL.**

STANDARD DIMENSIONS.

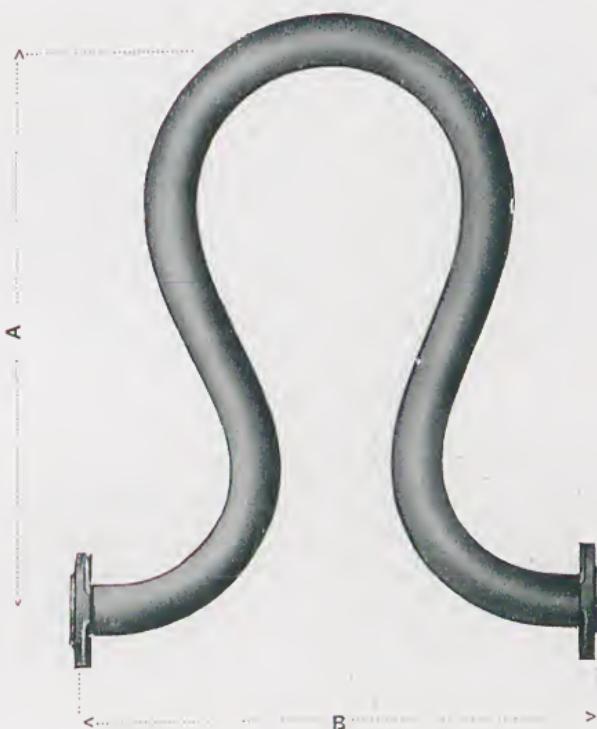
BORE	DIAMETER OF FLANGES	BOLT CIRCLE	NUMBER OF BOLTS	SIZE OF BOLTS	LENGTH OF BOLTS	DIAMETER OF COLLAR
ins. $1\frac{1}{2}$	ins. $4\frac{3}{4}$	ins. $3\frac{1}{2}$	3	ins. $\frac{1}{2}$	ins. $3\frac{1}{4}$	ins. $2\frac{1}{4}$
$1\frac{3}{4}$	5	$3\frac{3}{4}$	3	$\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{2}$
2	$5\frac{1}{4}$	4	4	$\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{3}{4}$
$2\frac{1}{4}$	$5\frac{5}{8}$	$4\frac{3}{8}$	4	$\frac{1}{2}$	$3\frac{1}{4}$	3
$2\frac{1}{2}$	6	$4\frac{3}{4}$	4	$\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{4}$
$2\frac{3}{4}$	$6\frac{1}{2}$	5	4	$\frac{5}{8}$	$3\frac{1}{2}$	$3\frac{1}{2}$
3	$6\frac{3}{4}$	$5\frac{1}{4}$	4	$\frac{5}{8}$	$3\frac{1}{2}$	$3\frac{3}{4}$
$3\frac{1}{4}$	7	$5\frac{1}{2}$	4	$\frac{5}{8}$	$3\frac{1}{2}$	4
$3\frac{1}{2}$	$7\frac{3}{8}$	$5\frac{5}{8}$	4	$\frac{5}{8}$	$3\frac{3}{4}$	$4\frac{3}{8}$
$3\frac{3}{4}$	$7\frac{5}{8}$	$5\frac{7}{8}$	4	$\frac{5}{8}$	$3\frac{3}{4}$	$4\frac{5}{8}$
4	$8\frac{1}{2}$	$6\frac{3}{4}$	4	$\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{7}{8}$
$4\frac{1}{2}$	9	$7\frac{1}{4}$	4	$\frac{3}{4}$	$4\frac{1}{4}$	$5\frac{3}{8}$
5	$9\frac{1}{2}$	$7\frac{5}{8}$	4	$\frac{3}{4}$	$4\frac{1}{2}$	6
$5\frac{1}{2}$	10	$8\frac{1}{8}$	4 or 6	$\frac{3}{4}$	$4\frac{1}{2}$	$6\frac{1}{2}$
6	$10\frac{1}{2}$	$8\frac{5}{8}$	4 or 6	$\frac{3}{4}$	$4\frac{5}{8}$	7
$6\frac{1}{2}$	11	$9\frac{3}{8}$	4 or 6	$\frac{3}{4}$	$4\frac{5}{8}$	$7\frac{5}{8}$
7	$11\frac{3}{4}$	10	4 or 6	$\frac{3}{4}$	$4\frac{3}{4}$	$8\frac{1}{4}$
$7\frac{1}{2}$	$12\frac{1}{4}$	$10\frac{1}{2}$	4 or 6	$\frac{3}{4}$	$4\frac{3}{4}$	$8\frac{3}{4}$
8	$12\frac{3}{4}$	$10\frac{7}{8}$	4 or 6	$\frac{7}{8}$	$5\frac{1}{8}$	$9\frac{1}{4}$
9	$14\frac{1}{2}$	$12\frac{5}{8}$	6	$\frac{7}{8}$	$5\frac{1}{4}$	$10\frac{1}{4}$
10	16	$13\frac{3}{4}$	8	$\frac{7}{8}$	$5\frac{1}{2}$	$11\frac{1}{4}$

"ALBION" EXPANSION JOINT.



Nominal Internal Diameter of Tubes ins.	2	2½	3	3½	4	5	6	7	8	9	10
Approximate Overall Dimension when Joint } is extended	18	19	21	21½	23	25	28½	30	33	36	39
Approximate amount of Expansion allowed for ,,	3½	3½	4	4½	4¾	5½	5½	5½	6	6	6
PRICE, each	35/-	42/-	52/-	62/-	69/-	94/-	110/-	131/-	163/-	181/-	210/-

The above are not fitted with Tie Bolts unless specially ordered, and at enhanced prices.

**"ALBION" JOINT EXPANSION BENDS.**

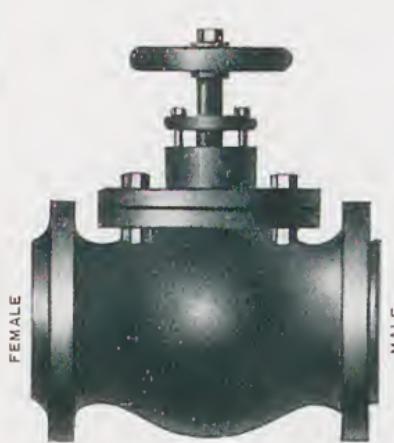
SIZE, ins.	2	2½	3	3½	4	5	6	7
A ... ins.	24	28	30	34	39	48	60	72
B ... "	24	27	30	35	40	50	58	64
PRICE, each	47/-	66/-	86/-	108/6	132/-	233/-	429/-	717/-



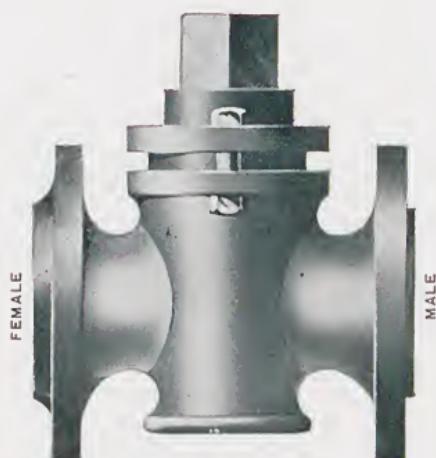
STEWARTS AND LLOYDS, LIMITED.

L & L

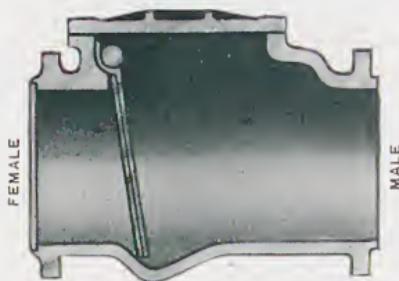
VALVES, &c.
WITH "ALBION" FLANGES.



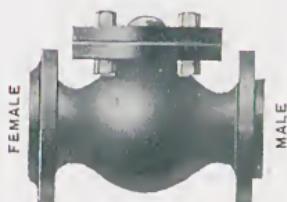
No. 189



No. 202



No. 728



No. 193



No. 733



No. 732

L & L

STEWARTS AND LLOYDS, LIMITED.

VALVES, &c., fitted with "ALBION" FLANGES.

No.	DIAMETER OF TUBE	...	...	...	...	...	...	...	ins.	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8
202	GLAND COCKS	...	...	...	...	...	...	...	each	$12\frac{1}{2}$	$18\frac{1}{2}$	$24\frac{1}{2}$	$32\frac{1}{2}$	$42\frac{1}{2}$	$51\frac{1}{2}$				
189	WHEEL VALVES	...	...	...	...	...	...	...	"	$22\frac{1}{2}$	$27\frac{1}{2}$	$33\frac{1}{2}$	$42\frac{1}{2}$	$51\frac{1}{2}$	$60\frac{1}{2}$	$86\frac{1}{2}$	$107\frac{1}{2}$	$136\frac{1}{2}$	$168\frac{1}{2}$
193	CHECK VALVES	...	...	...	...	...	...	...	"	$20\frac{1}{2}$	$23\frac{1}{2}$	$26\frac{1}{2}$	$33\frac{1}{2}$	$42\frac{1}{2}$	$51\frac{1}{2}$	$78\frac{1}{2}$	$99\frac{1}{2}$	$116\frac{1}{2}$	$161\frac{1}{2}$
728	" " (Swinging)	...	...	...	...	...	...	...	"	$22\frac{1}{2}$	$27\frac{1}{2}$	$31\frac{1}{2}$	$37\frac{1}{2}$	$45\frac{1}{2}$	$48\frac{1}{2}$	$60\frac{1}{2}$	$78\frac{1}{2}$	$101\frac{1}{2}$	$118\frac{1}{2}$
732	FOOT VALVE AND STRAINER	...	...	...	...	...	...	...	"	$22\frac{1}{2}$	$27\frac{1}{2}$	$33\frac{1}{2}$	$36\frac{1}{2}$	$45\frac{1}{2}$	$57\frac{1}{2}$	$70\frac{1}{2}$	$85\frac{1}{2}$	$128\frac{1}{2}$	$153\frac{1}{2}$
733	STRAINERS	...	...	...	...	...	...	...	"	$14\frac{1}{2}$	$16\frac{1}{2}$	$21\frac{1}{2}$	$27\frac{1}{2}$	$33\frac{1}{2}$	$37\frac{1}{2}$	$41\frac{1}{2}$	$45\frac{1}{2}$		

The Inlets are fitted with "Female" and the Outlets with "Male" flanges unless otherwise stated.

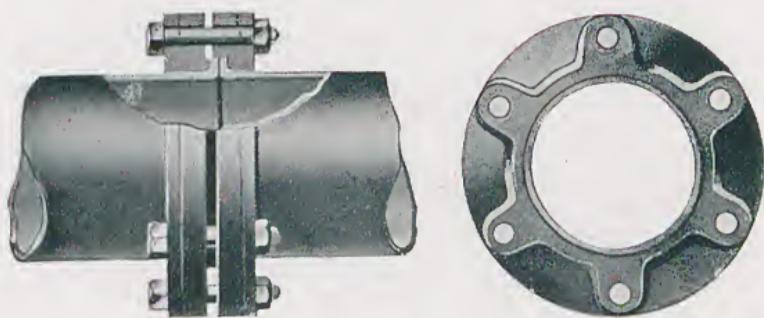
Foot valves & strainers, and strainers have "Male" flanges.



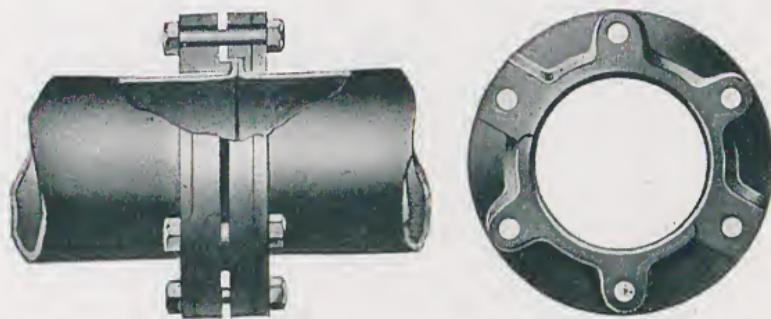


"STEWARTS" PATENT LOOSE FLANGE JOINTS.

No. 1 or WHOLE FLANGE JOINT.



No. 2 or DIVIDED FLANGE JOINT.



PROTECTION OF TUBES WITHOUT FLANGES.



PROTECTION OF TUBES WITH WHOLE FLANGES.



**WROUGHT IRON AND STEEL TUBES
WITH "STEWARTS" PATENT LOOSE FLANGE JOINTS, AND FITTINGS FOR SAME.**

PRICE LIST.

NOMINAL INSIDE DIAM. OF TUBE, ins.	$1\frac{1}{4}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	9	10	
Thickness of Tube, wire gauge	13	12	12	12	11	11	10	10	10	9	9	8	8	7	7	7	6	6	6	4	3	
Thickness of Tube, decimals of an Inch...	"092	"104	"104	"104	"116	"116	"128	"128	"128	"144	"144	"160	"160	"176	"176	"176	"192	"192	"192	"232	"252	
Gross price per foot of Tubes	... 1/2	1/3	1/4	1/5	1/8	1/10	2/1	2/3	2/6	2/10	3/2	4/	4/9	5/6	6/4	7/3	8/6	9/9	11/6	14/	18/6	
TUBE BENDS each	11/-	12/-	13/-	15/-	16/-	18/-	20/-	24/-	27/-	30/-	35/-	45/-	57/-	6/80/-	95/-	110/-	130/-	160/-	190/-	260/-	330/-	
CONNECTING OR REDUCING } PIECES	6/-	7/-	8/-	9/-	10/-	11/-	12/-	13/-	14/-	15/-	17/-	23/-	27/-	32/-	37/-	42/-	48/-	55/-	60/-	70/-	85/-	
ELBOWS, Cast Iron	14/-	15/-	6 16/-	6	17/-	18/-	6	20/-	21/-	6	23/-	25/-	27/-	6	30/-	36/-	42/-	48/-	55/-	62/-	70/-	80/-
TEES, Cast Iron	20/-	21/-	22/-	23/-	24/-	6	27/-	29/-	31/-	6	33/-	6	37/-	49/-	49/-	56/-	64/-	74/-	84/-	95/-	106/-	120/-
ELBOWS, Cast Steel	16/-	17/-	18/-	20/-	25/-	28/-	31/-	35/-	38/-	42/-	46/-	50/-	54/-	64/-	68/-	80/-	92/-	104/-	120/-	140/-	170/-	
TEES, Cast Steel	21/-	22/-	23/-	6	26/-	30/-	33/-	36/-	42/-	48/-	51/-	55/-	64/-	72/-	82/-	95/-	106/-	120/-	140/-	160/-	200/-	240/-



Notes.

"STEWARTS" PATENT LOOSE FLANGE JOINTS.

JOINTING MATERIAL. All prices include the necessary Bolts, Nuts, and India-Rubber Fibre Washers to form the joints complete.

LENGTHS. Tube prices are for long average lengths of 15 ft. and up. Lengths under 14 ft. are charged at $2\frac{1}{2}\%$ less gross discount for every foot or part of a foot less than 14 ft. Exact lengths are charged at special prices.

THICKNESSES. The thicknesses of Tubes given up to 8" diameter are as thin as can be conveniently made. Thinner tubes can be supplied for 9" and 10", to suit working pressures lower than 300 lbs. per square inch. Thicker tubes than gauge given on list can be supplied to suit special circumstances at $2\frac{1}{2}$ per cent. less gross discount for every extra gauge.

PRESSESURES. The Tubes and Joints are designed for a daily working water pressure of 300 lbs. per square inch, 700 ft. head, 20 Atmospheres or 21 Kilos. per square centimetre. A test of $3\frac{1}{3}$ times the working pressures can, if necessary, be applied.

PROTECTION. To protect the Tube ends in transit No. 1 or whole flanges are securely fixed with wooden bars bolted on as shewn on page 47. The divided flanges for No. 2 Joint are bolted together in pairs and sent loose, or the smaller sizes may be packed in casks if desired. The turned up ends of Tube without flanges are protected with wooden discs secured with rods as shewn on page 47. No extra charge is made for this protection.



**"STEWARTS" PATENT LOOSE FLANGE
JOINT.**

FLANGES—CAST IRON. STANDARD DIMENSIONS.

BORE	DIAMETER OF FLANGES	BOLT CIRCLE	NUMBER OF BOLTS	SIZE OF BOLTS	LENGTH OF BOLTS	DIAMETER OF RECESS
ins. $1\frac{1}{4}$	ins. $4\frac{1}{4}$	ins. $3\frac{1}{8}$	3	ins. $\frac{1}{2}$	ins. $2\frac{3}{4}$	ins. $2\frac{1}{8}$
$1\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{3}{8}$	4	$\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{3}{8}$
$1\frac{3}{4}$	$4\frac{3}{4}$	$3\frac{5}{8}$	4	$\frac{1}{2}$	$2\frac{7}{8}$	$2\frac{5}{8}$
2	$5\frac{1}{4}$	4	4	$\frac{1}{2}$	$3\frac{1}{8}$	3
$2\frac{1}{4}$	$5\frac{1}{2}$	$4\frac{1}{4}$	4	$\frac{1}{2}$	$3\frac{1}{8}$	$3\frac{1}{4}$
$2\frac{1}{2}$	$5\frac{3}{4}$	$4\frac{1}{2}$	4	$\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{2}$
$2\frac{3}{4}$	$6\frac{1}{4}$	$4\frac{7}{8}$	4	$\frac{5}{8}$	$3\frac{3}{8}$	$3\frac{3}{4}$
3	$6\frac{3}{4}$	$5\frac{1}{4}$	4	$\frac{5}{8}$	$3\frac{5}{8}$	$4\frac{1}{8}$
$3\frac{1}{4}$	$7\frac{1}{4}$	$5\frac{3}{4}$	4	$\frac{5}{8}$	$3\frac{5}{8}$	$4\frac{3}{8}$
$3\frac{1}{2}$	$7\frac{1}{2}$	6	4	$\frac{5}{8}$	$3\frac{3}{4}$	$4\frac{5}{8}$
$3\frac{3}{4}$	8	$6\frac{1}{4}$	4	$\frac{5}{8}$	$3\frac{3}{4}$	$4\frac{7}{8}$
4	$8\frac{1}{2}$	$6\frac{5}{8}$	4	$\frac{3}{4}$	$4\frac{1}{8}$	$5\frac{1}{4}$
$4\frac{1}{2}$	$9\frac{1}{4}$	$7\frac{3}{8}$	4	$\frac{3}{4}$	$4\frac{1}{4}$	$5\frac{7}{8}$
5	10	$8\frac{1}{8}$	6	$\frac{3}{4}$	$4\frac{1}{4}$	$6\frac{11}{16}$
$5\frac{1}{2}$	$10\frac{1}{2}$	$8\frac{5}{8}$	6	$\frac{3}{4}$	$4\frac{1}{4}$	$7\frac{3}{16}$
6	$11\frac{1}{4}$	$9\frac{3}{8}$	6	$\frac{3}{4}$	$4\frac{5}{8}$	$7\frac{13}{16}$
$6\frac{1}{2}$	$11\frac{3}{4}$	$9\frac{7}{8}$	6	$\frac{3}{4}$	$4\frac{5}{8}$	$8\frac{5}{16}$
7	$12\frac{1}{2}$	$10\frac{1}{2}$	8	$\frac{3}{4}$	$4\frac{3}{4}$	$8\frac{15}{16}$
$7\frac{1}{2}$	13	11	8	$\frac{3}{4}$	$4\frac{3}{4}$	$9\frac{7}{16}$
8	$13\frac{3}{4}$	$11\frac{3}{4}$	8	$\frac{3}{4}$	5	$10\frac{1}{8}$
9	$15\frac{1}{4}$	13	8	$\frac{7}{8}$	$5\frac{1}{2}$	$11\frac{1}{4}$
10	$16\frac{1}{2}$	$14\frac{1}{4}$	10	$\frac{7}{8}$	$5\frac{3}{4}$	$12\frac{3}{8}$



“STEWARTS” PATENT LOOSE FLANGE JOINT.

FLANGES—CAST STEEL. STANDARD DIMENSIONS.

BORE	DIAMETER OF FLANGES	BOLT CIRCLE	NUMBER OF BOLTS	SIZE OF BOLTS	LENGTH OF BOLTS	DIAMETER OF RECESS
ins.	ins.	ins.		ins.	ins.	ins.
1 $\frac{1}{4}$	4 $\frac{1}{4}$	3 $\frac{1}{8}$	3	$\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$
1 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{3}{8}$	4	$\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$
1 $\frac{3}{4}$	4 $\frac{3}{4}$	3 $\frac{5}{8}$	4	$\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{5}{8}$
2	5 $\frac{1}{4}$	4	4	$\frac{1}{2}$	2 $\frac{3}{8}$	3
2 $\frac{1}{4}$	5 $\frac{1}{2}$	4 $\frac{1}{4}$	4	$\frac{1}{2}$	2 $\frac{3}{8}$	3 $\frac{1}{4}$
2 $\frac{1}{2}$	5 $\frac{3}{4}$	4 $\frac{1}{2}$	4	$\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$
2 $\frac{3}{4}$	6 $\frac{1}{4}$	4 $\frac{7}{8}$	4	$\frac{5}{8}$	2 $\frac{5}{8}$	3 $\frac{3}{4}$
3	6 $\frac{3}{4}$	5 $\frac{1}{4}$	4	$\frac{5}{8}$	2 $\frac{3}{4}$	4 $\frac{1}{8}$
3 $\frac{1}{4}$	7 $\frac{1}{4}$	5 $\frac{3}{4}$	4	$\frac{5}{8}$	2 $\frac{3}{4}$	4 $\frac{3}{8}$
3 $\frac{1}{2}$	7 $\frac{1}{2}$	6	4	$\frac{5}{8}$	2 $\frac{7}{8}$	4 $\frac{5}{8}$
3 $\frac{3}{4}$	8	6 $\frac{1}{4}$	4	$\frac{5}{8}$	2 $\frac{7}{8}$	4 $\frac{7}{8}$
4	8 $\frac{1}{2}$	6 $\frac{5}{8}$	4	$\frac{3}{4}$	3 $\frac{1}{4}$	5 $\frac{1}{4}$
4 $\frac{1}{2}$	9 $\frac{1}{4}$	7 $\frac{3}{8}$	4	$\frac{3}{4}$	3 $\frac{3}{8}$	5 $\frac{7}{8}$
5	10	8 $\frac{1}{8}$	6	$\frac{3}{4}$	3 $\frac{3}{8}$	6 $1\frac{1}{16}$
5 $\frac{1}{2}$	10 $\frac{1}{2}$	8 $\frac{5}{8}$	6	$\frac{3}{4}$	3 $\frac{3}{8}$	7 $3\frac{1}{16}$
6	11 $\frac{1}{4}$	9 $\frac{3}{8}$	6	$\frac{3}{4}$	3 $\frac{1}{2}$	7 $13\frac{1}{16}$
6 $\frac{1}{2}$	11 $\frac{3}{4}$	9 $\frac{7}{8}$	6	$\frac{3}{4}$	3 $\frac{1}{2}$	8 $5\frac{1}{16}$
7	12 $\frac{1}{2}$	10 $\frac{1}{2}$	8	$\frac{3}{4}$	3 $\frac{3}{4}$	8 $15\frac{1}{16}$
7 $\frac{1}{2}$	13	11	8	$\frac{3}{4}$	3 $\frac{3}{4}$	9 $7\frac{1}{16}$
8	13 $\frac{3}{4}$	11 $\frac{3}{4}$	8	$\frac{3}{4}$	3 $\frac{3}{4}$	10 $1\frac{1}{8}$
9	15 $\frac{1}{4}$	13	8	$\frac{7}{8}$	4 $\frac{1}{8}$	11 $\frac{1}{4}$
10	16 $\frac{1}{2}$	14 $\frac{1}{4}$	10	$\frac{7}{8}$	4 $\frac{1}{4}$	12 $\frac{3}{8}$



STEWARTS AND LLOYDS, LIMITED.

L & L

LAP-WELDED
IRON, STEEL & HOMOGENEOUS IRON TUBES
 FOR
LOCOMOTIVE, MARINE, and STATIONARY BOILERS.
 Tested to 1000 lbs. per square inch (68 Atmospheres.)

BOILER TUBE SWELLED ONE END



BOILER TUBE SWELLED AND REDUCED



STEEL TUBE WITH STAVED ENDS FOR MARINE BOILERS



STAY TUBE WITH STAVED ENDS AND PLUS THREADS



STAY TUBE, SCREWED ORDINARY

**TUBE ROLLER**

No. 153



No. 154



TUBE FOR "FIELD'S" PATENT BOILER



FERRULE

**COPPER ENDED BOILER TUBES**

No. 155



L & L

STEWARTS AND LLOYDS, LIMITED.

IRON AND STEEL BOILER TUBES.

PRICE LIST.

EXTERNAL DIAMETER in ins...	1 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	2	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{5}{8}$	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3	
IMPERIAL WIRE GAUGE ...	13	13	13	13	13	13	13	12	12	11	11	11	11	11	11
Equivalents in inches	'092	'092	'092	'092	'092	'092	'092	'104	'104	'116	'116	'116	'116	'116	'116
Price per ft. of above W.G.	9 $\frac{1}{2}$ d	9 $\frac{1}{2}$ d	9 $\frac{1}{2}$ d	9 $\frac{3}{4}$ d	9 $\frac{3}{4}$ d	10d	10 $\frac{1}{4}$ d	10 $\frac{3}{4}$ d	10 $\frac{1}{4}$ d	10 $\frac{1}{2}$ d					
" " 1 extra Gauge ...	10 $\frac{1}{2}$ d	10 $\frac{1}{2}$ d	10 $\frac{1}{2}$ d	10 $\frac{3}{4}$ d	10 $\frac{3}{4}$ d	11d	11 $\frac{1}{2}$ d								
" " 2 Gauges ...	11 $\frac{3}{4}$ d	12	10 $\frac{1}{4}$ d	10 $\frac{3}{4}$ d	12 $\frac{1}{4}$ d										
" " 3 " "	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d					
" " 4 " "	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d	1 $\frac{1}{2}$ d					
Price per ft. of 3/16 in. thick ...	1/6	1/6	1/6	1/6	1/6	1/7	1/7	1/7	1/8	1/9	1/9	1/10	1/10	1/10	1/10
" " 1/4 "	1/11	1/11	1/11	1/11	1/11	2/1	2/1	2/2	2/3	2/4	2/4	2/5	2/6	2/8	2/9
" " 5/16 "	...	...	...	...	...	...	...	...	2/10	2/11 $\frac{1}{2}$	3/1	3/2	3/3	3/5	3/7
" " 3/8 "	...	...	...	...	...	...	...	...	3/10	4/	4/1	4/3	4/6	4/8	5/
" " 7/16 "	...	...	...	...	...	...	...	...	4/5	4/8	4/11	5/1	5/4	5/8	6/3
" " 1/2 "	...	...	...	...	...	...	...	...	5/3	5/8	6/	6/2	6/6	6/10	7/2



STEWARTS AND LLOYDS, LIMITED.

L & L

IRON AND STEEL BOILER TUBES.

PRICE LIST—continued.

EXTERNAL DIA. in Ins.	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{4}$	$5\frac{3}{4}$	6	$6\frac{1}{4}$	$6\frac{3}{4}$	7
IMPERIAL WIRE GAUGE EQUIVALENTS in Inches	10 •128	10 •128	9 •144	9 •144	8 •144	8 •160	8 •160	8 •160	7 •176	7 •176	7 •176	7 •176	7 •176	7 •176
Price per ft. of above W.G., Extra Gauge	$1\frac{1}{10}\frac{1}{2}$	$1\frac{1}{10}\frac{1}{2}$	$2\frac{1}{4}\frac{1}{2}$	$2\frac{7}{16}$	$2\frac{9}{16}$	$3\frac{1}{4}$	$3\frac{7}{16}$	$3\frac{1}{4}$	$4\frac{1}{11}$	$5\frac{2}{11}$	$5\frac{10}{11}$	$6\frac{1}{11}$	$6\frac{7}{11}$	$6\frac{10}{11}$
" " 2, Gauges	$1\frac{10}{12}\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{7}{16}$	$2\frac{10}{12}\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{8}{11}$	$4\frac{3}{11}$	$4\frac{1}{11}$	$5\frac{4}{11}$	$5\frac{7}{11}$	$6\frac{4}{11}$	$6\frac{7}{11}$	$7\frac{2}{11}$	$7\frac{5}{11}$
" " 3, " "	$2\frac{1}{3}$	$2\frac{5}{12}$	$2\frac{10}{12}\frac{1}{2}$	$3\frac{2}{3}$	$3\frac{4}{3}$	$4\frac{1}{3}$	$4\frac{8}{11}$	$5\frac{5}{11}$	$5\frac{11}{11}$	$6\frac{2}{11}$	$7\frac{1}{11}$	$7\frac{3}{11}$	$7\frac{10}{11}$	$8\frac{2}{11}$
" " 4, " "	$2\frac{3}{4}\frac{1}{2}$	$2\frac{5}{4}\frac{1}{2}$	$2\frac{7}{16}$	$3\frac{1}{4}$	$3\frac{5}{8}$	$4\frac{5}{8}$	$4\frac{8}{11}$	$5\frac{2}{11}$	$5\frac{10}{11}$	$6\frac{5}{11}$	$6\frac{9}{11}$	$7\frac{7}{11}$	$7\frac{11}{11}$	$8\frac{7}{11}$
Price per ft. of $3\frac{1}{16}$ in. thick	$2\frac{5}{5}$	$2\frac{8}{8}$	$2\frac{10}{12}\frac{1}{2}$	$3\frac{5}{5}$	$3\frac{9}{9}$	$4\frac{1}{1}$	$4\frac{10}{10}$	$5\frac{6}{6}$	$5\frac{9}{9}$	$6\frac{3}{3}$	$6\frac{7}{7}$	$7\frac{1}{1}$	$7\frac{5}{5}$	$8\frac{8}{8}$
" " $\frac{1}{4}$, " "	$3\frac{3}{3}$	$3\frac{6}{6}$	$3\frac{9}{9}$	$4\frac{1}{1}$	$4\frac{6}{6}$	$4\frac{10}{10}$	$5\frac{6}{6}$	$5\frac{9}{9}$	$6\frac{3}{3}$	$6\frac{7}{7}$	$7\frac{1}{1}$	$7\frac{5}{5}$	$8\frac{8}{8}$	$9\frac{4}{4}$
" $\frac{5}{16}$, " "	$4\frac{2}{2}$	$4\frac{7}{7}$	$4\frac{11}{11}$	$5\frac{4}{4}$	$5\frac{11}{11}$	$6\frac{3}{3}$	$7\frac{1}{1}$	$7\frac{6}{6}$	$8\frac{1}{1}$	$8\frac{6}{6}$	$9\frac{1}{1}$	$9\frac{6}{6}$	$10\frac{6}{6}$	$11\frac{1}{6}$
" $\frac{3}{8}$, " "	$5\frac{7}{7}$	$6\frac{1}{1}$	$6\frac{7}{7}$	$7\frac{1}{1}$	$7\frac{10}{10}$	$8\frac{4}{4}$	$9\frac{6}{6}$	$10\frac{6}{6}$	$11\frac{1}{1}$	$11\frac{8}{8}$	$12\frac{3}{3}$	$13\frac{9}{9}$	$14\frac{4}{4}$	$15\frac{1}{1}$
" $\frac{7}{16}$, " "	$7\frac{1}{1}$	$7\frac{8}{8}$	$8\frac{4}{4}$	$9\frac{1}{1}$	$10\frac{6}{6}$	$11\frac{10}{10}$	$12\frac{6}{6}$	$13\frac{3}{3}$	$14\frac{1}{1}$	$14\frac{9}{9}$	$15\frac{6}{6}$	$16\frac{9}{9}$	$17\frac{4}{4}$	$18\frac{1}{1}$
" $\frac{1}{2}$, " "	$8\frac{9}{9}$	$9\frac{6}{6}$	$10\frac{3}{3}$	$11\frac{2}{2}$	$12\frac{2}{2}$	$13\frac{1}{1}$	$14\frac{6}{6}$	$15\frac{6}{6}$	$16\frac{6}{6}$	$17\frac{3}{3}$	$18\frac{1}{1}$	$19\frac{1}{1}$	$20\frac{6}{6}$	$21\frac{3}{3}$

IRON AND STEEL BOILER TUBES.

PRICE LIST—continued.

EXTERNAL DIA. in ins.	$7\frac{1}{4}$	$7\frac{1}{2}$	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	9	$9\frac{1}{4}$	$9\frac{1}{2}$	$9\frac{3}{4}$	10	$10\frac{1}{4}$	$10\frac{1}{2}$	$10\frac{3}{4}$	11	$11\frac{1}{2}$	12
IMPERIAL WIRE GAUGE EQUIVALENTS in inches	5	5	5	5	3	3	3	3	3	3	3	3	2	2	1	1	1	1
Price per ft. of above W.G.	8/9	9/1	9/5	9/9	12/3	12/7	13/	13/4	14/9	15/2	15/6	16/-	18/-	18/-	18/-	21/-	22/-	23/-
" " 1 extra Gauge	9/7	9/11	10/3	10/7	13/5	13/10	14/4	14/9	16/3	16/8	17/1	17/6	19/6	20/-	...	...	...	...
" " 2 Gauges	10/4	10/8	11/	11/5	14/6	15/	15/6	16/-	17/6	18/-	18/6	19/-	...	...	...	...	...	...
" " 3 " "	11/4	11/9	12/2	12/7	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" " 4 " "	12/3	12/9	13/2	13/7	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Price per ft. of $\frac{3}{16}$ in. thick																		
" " $\frac{1}{4}$	10/4	10/8	11/-	11/5	12/3	12/7	13/	13/4	14/9	15/2	15/6	16/-	...	...	...	...	...	...
" " $\frac{5}{16}$	12/9	13/3	13/8	14/2	15/2	15/8	16/-	16/7	18/3	18/9	19/4	19/10	20/6	21/-	21/6	22/-	23/-	24/-
" " $\frac{3}{8}$	16/-	16/6	17/3	18/-	18/6	19/3	19/9	21/9	22/6	23/-	23/6	24/6	25/-	25/6	26/-	27/3	28/6	
" " $\frac{7}{16}$	19/6	20/3	21/-	21/9	22/3	23/-	23/9	24/6	26/9	27/6	28/3	29/-	29/9	29/39/6	31/33/2/9	34/-	35/636/6	37/6 39/- 40/6
" " $\frac{1}{2}$	24/-	24/9	25/9	26/6	27/6	28/3	29/3	30/3	31/-	32/-	32/10	33/9	34/6	35/636/6	37/6 39/- 40/6			



STEWARTS AND LLOYDS, LIMITED.

L & L

IRON AND STEEL STAY TUBES

SCREWED TUBULAR STAYS, INCLUSIVE OF 11 INCHES OF SCREWING.—Price per foot.

EXTERNAL DIAM. in ins.	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5					
3/16 in. thick	1/8	1 8/1	1/9	1 9/1	1 1/2	1/10	1/11	1 1/11	2/1	2/0 1/2	2/2	2/3	2/5	2/6	2/8	2/10 1/2	3/4	3/8	3/11	4/3	4/6		
1/4	2/1	2/2	2/3	2/4	2/5	2/6	2/6 1/2	2/7	2/8	2/10 2/11	3/2	3/3	3/6	3/9	4/	4/5	4/10	5/2	5/10	6/1			
5/16	3/	3/1 1/2	3/3	3/4	3/5	3/7	3/9	4/	4/2	4/5	4/10	5/2	5/8	6/3	6/7	7/5	7/10
3/8	3/9	4/	4/2	4/3	4/5	4/8 4/10	5/3	5/5	5/10	6/4	6/10	7/5	8/2	8/8	9/10	10/4	10/10
7/16	4/7	4/10	5/1	5/3	5/6	5/10	6/1	6/6	6/9	7/4	7/11	8/7	9/4	10/4	10/10	12/2	12/10
1/2	5/5	5/10	6/2	6/4	6/8	7/	7/4	7/9	8/3	9/	9/9	10/6	11/12	6	13/4	14/10	15/10

SCREWED NUTS, SWELLING STAYS, AND SCREWING STAYS BEYOND 11 INCHES.

EXT. DIAM. OF STAYS	In ins.	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5
SCREWED NUTS	... ... each	8d	9d	10d	11d	12	13	14	15	16	17	18	19	1/10	2/3	2/8	3/	3/5	3/9	4/2	4/8	5/3
SWELLING STAYS,	1/4 in. per End	6d	6d	7d	7d	8d	8d	9d	10d	10d	11	11	12	1/2	1/2	1/4	1/4	1/4	1/6	1/10	2/	
SCREWING STAYS,	per Lin. in. ...	1d	1d	1 1/4 d	1 1/4 d	1 1/2 d	1 1/2 d	2d	2d	2 1/2 d	2 1/2 d	2 1/2 d	2 1/2 d	3d	3d	3 1/2 d	3 1/2 d	4d	5d	5d	5d	

L & L

STEWARTS AND LLOYDS, LIMITED.

L & L

IRON AND STEEL STAY TUBES—continued.

PRICE LIST.

THICKENING UP ENDS OF TUBES TO $\frac{3}{8}$ INCH FOR $2\frac{1}{2}$ INCHES UP—Price per end.

EXT. DIAM. OF TUBE	... ins.	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	
TUBES $3\frac{1}{16}$ in. thick	4/-	4/-	4/-	5/-	5/-	5/-	5/-	6/-	6/-	6/-	6/-	7/-	7/-	7/-	7/-	8/-	8/-	8/-	8/-	8/-	8/-	8/-
TUBES $\frac{5}{16}$	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-	3/-
TUBES $5\frac{1}{16}$	2/9	2/11	3/11	3/13	3/13	3/7	3/9	4/-	4/3	4/6	4/9	5/-	5/3	5/8	6/3	6/8	7/-	7/6	8/6	9/6	10/6	10/6

IRON COLLARS WELDED ON TUBES, TURNING AND FACING COLLARS, AND WELDING IN ENDS OF TUBES.

DIAMETER OF TUBE	... ... ...	... in ins.	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5							
LENGTH OF COLLAR in ins.	2	2	2	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$													
COLLAR $3\frac{1}{16}$ in. thick	each	1/4	1/6	1/8	1/10	2/1	2/4	2/7	2/10	3/1	3/4	3/1	3/4	3/8	4/-	4/-	4/-	4/-	4/-	4/-	
" $\frac{5}{16}$	" " "	"	1/7	1/9	1/11	2/1	2/4	2/7	2/10	3/1	3/4	3/1	3/4	3/7	4/-	4/-	4/-	4/-	4/-	4/-	4/-	
TURNING AND FACING COLLARS	"	1/2	1/4	1/6	1/8	1/11	2/2	2/5	2/8	2/11	3/2	3/2	3/6	3/10	4/-	4/-	4/-	4/-	4/-	4/-	4/-
WELDING IN ENDS	"	1/4	1/6	1/8	1/10	2/1	2/4	2/7	2/10	3/1	3/4	3/8	3/8	3/8	4/-	4/-	4/-	4/-	4/-	4/-	4/-

Note.—Every $\frac{1}{2}$ in. increased length of Collar up to 3 in. diam. will be charged 7d. per $\frac{1}{2}$ in. extra; and larger diams. rod. per $\frac{1}{2}$ in. extra.



Notes on Iron and Steel Boiler and Stay Tubes.

BOILER TUBES.

Tubes of intermediate diameters will be charged at the same price as the next larger size.

Tubes of an intermediate thickness will be charged at the price of the next greater thickness.

Tubes thinner than the List gauge will be charged at the price for the usual List gauge.

Tubes up to 18 feet 6 inches long are supplied without extra charge.

Tubes longer than 18 feet 6 inches will be charged at $2\frac{1}{2}$ per cent. less gross discount for every foot or part of a foot.

Tubes up to and including 5 inches external diameter, and not thicker than No. 7 I.W.G., are swelled or reduced $\frac{1}{16}$ inch at one end for 4 inches up without extra charge. Swelling or reducing more than $\frac{1}{16}$ inch at one end will be charged at a gross price of 12/- per 100 ends per $\frac{1}{16}$ inch.

The swelling of Tubes up to and including 5 inches external diameter, and thicker than No. 7 I.W.G., will be charged at the gross prices for swelling Stay Tubes.

When no thickness of Tube is specified, orders will be executed at the wire-gauge named on the first line.

STAY TUBES.

Unless otherwise ordered, "Screwed" Stays are sent screwed $6\frac{1}{2}$ " up at one end and $4\frac{1}{2}$ " up at the other end.

THICKENING.—Any Tubes over $\frac{5}{16}$ in. thick are charged at same prices as those for $\frac{5}{16}$ in. thick.

When the length of the thickened end exceeds $2\frac{1}{2}$ ins., 1s 8d is added to list prices for every $\frac{1}{2}$ inch of the extra length.

If no thickness is specified, Stay Tubes are sent $\frac{1}{4}$ inch thick.



**THEORETICAL WEIGHTS OF
WEIGHT PER**

Ext. Diam. of Tubes inches.	THICKNESS OF TUBES IN FRACTIONS, WIRE										
	$\frac{1}{16}''$.0625	16 W.G .054	15 W.G .072	$\frac{5}{4}''$.078	14 W.G .080	13 W.G .092	$\frac{3}{32}''$.094	12 W.G .104	$\frac{7}{4}''$.109	11 W.G .116	$\frac{1}{8}''$.125
1	0.614	0.627	0.700	0.754	0.771	0.875	0.890	0.976	1.020	1.074	1.145
$1\frac{1}{4}$	0.777	0.795	0.888	0.959	0.980	1.116	1.135	1.248	1.306	1.378	1.473
$1\frac{1}{2}$	0.941	0.962	1.077	1.163	1.190	1.356	1.381	1.520	1.593	1.681	1.800
$1\frac{3}{4}$	1.104	1.130	1.265	1.368	1.399	1.597	1.626	1.793	1.879	1.985	2.127
2	1.268	1.297	1.454	1.572	1.609	1.838	1.872	2.065	2.165	2.289	2.454
$2\frac{1}{4}$	1.432	1.465	1.642	1.777	1.818	2.079	2.117	2.337	2.452	2.592	2.782
$2\frac{1}{2}$	1.595	1.633	1.831	1.981	2.027	2.320	2.362	2.609	2.738	2.896	3.109
$2\frac{3}{4}$	1.759	1.800	2.019	2.186	2.237	2.561	2.608	2.882	3.025	3.200	3.436
3	1.923	1.968	2.208	2.390	2.446	2.802	2.853	3.154	3.311	3.503	3.763
$3\frac{1}{4}$	2.086	2.135	2.396	2.595	2.656	3.042	3.099	3.426	3.597	3.807	4.091
$3\frac{1}{2}$	2.250	2.303	2.585	2.799	2.865	3.283	3.344	3.699	3.884	4.111	4.418
$3\frac{3}{4}$	2.413	2.470	2.773	3.004	3.075	3.524	3.590	3.971	4.170	4.415	4.745
4	...	2.638	2.962	3.208	3.284	3.765	3.835	4.243	4.456	4.718	5.072
$4\frac{1}{4}$	...	2.805	3.150	3.413	3.494	4.066	4.081	4.515	4.743	5.022	5.400
$4\frac{1}{2}$	...	2.973	3.339	3.618	3.703	4.247	4.326	4.788	5.029	5.326	5.727
$4\frac{3}{4}$	...	3.140	3.527	3.822	3.913	4.488	4.572	5.060	5.315	5.629	6.054
5	...	...	3.716	4.027	4.122	4.728	4.817	5.332	5.602	5.933	6.381
$5\frac{1}{4}$	...	...	3.904	4.231	4.331	4.969	5.062	5.604	5.888	6.237	6.709
$5\frac{1}{2}$	...	...	4.093	4.436	4.541	5.210	5.308	5.877	6.174	6.540	7.036
$5\frac{3}{4}$	...	...	4.281	4.640	4.750	5.451	5.553	6.149	6.461	6.844	7.363
6	...	...	...	4.845	4.960	5.692	5.799	6.421	6.747	7.148	7.690
$6\frac{1}{4}$	...	...	...	5.049	5.169	5.933	6.044	6.694	7.033	7.452	8.018
$6\frac{1}{2}$	...	...	...	5.254	5.379	6.173	6.290	6.966	7.320	7.755	8.345
$6\frac{3}{4}$	...	...	...	5.458	5.588	6.414	6.535	7.238	7.606	8.059	8.672
7	...	...	...	...	5.798	6.655	6.781	7.510	7.892	8.363	8.999
$7\frac{1}{4}$	...	...	...	...	6.007	6.896	7.026	7.783	8.179	8.666	9.327
$7\frac{1}{2}$	...	...	...	...	6.216	7.137	7.271	8.055	8.465	8.970	9.654
$7\frac{3}{4}$	...	...	...	...	6.426	7.378	7.517	8.327	8.752	9.274	9.981
8	...	...	...	...	...	7.619	7.762	8.599	9.038	9.577	10.308
$8\frac{1}{4}$	...	...	...	...	...	7.859	8.008	8.872	9.324	9.881	10.636
$8\frac{1}{2}$	...	...	...	...	...	8.100	8.253	9.144	9.611	10.185	10.963
$8\frac{3}{4}$	...	...	...	...	...	8.341	8.499	9.416	9.897	10.489	11.290
9	...	...	...	...	...	...	8.744	9.689	10.183	10.792	11.617
$9\frac{1}{4}$	...	...	...	...	...	...	8.990	9.951	10.470	11.006	11.945
$9\frac{1}{2}$	...	...	...	...	...	...	9.235	10.233	10.756	11.400	12.272
$9\frac{3}{4}$	...	...	...	...	...	...	9.481	10.505	11.042	11.703	12.509
10	...	...	...	...	...	...	...	10.778	11.329	12.007	12.926
$10\frac{1}{4}$	...	...	...	...	...	...	...	11.050	11.015	12.311	13.254
$10\frac{1}{2}$	...	...	...	...	...	...	...	11.322	11.901	12.614	13.581
$10\frac{3}{4}$	...	...	...	...	...	...	...	11.595	12.188	12.918	13.908

For each Fraction of an Inch

$\frac{3}{16}$	0.123	0.126	0.141	0.153	0.157	0.181	0.184	0.204	0.215	0.228	0.245
$\frac{1}{8}$	0.032	0.084	0.094	0.102	0.105	0.120	0.123	0.136	0.143	0.152	0.164
$\frac{1}{16}$	0.041	0.042	0.047	0.051	0.052	0.060	0.061	0.068	0.072	0.076	0.082

If Inside Diameter of Tube is given, take

To obtain weight of Tubes in Kilos per Metre,



STEWARTS AND LLOYDS, LIMITED.

L & L

WROUGHT-IRON TUBES.

FOOT IN LBS.

GAUGES AND DECIMALS OF AN INCH.

10 W.G .128	9 1/4" .141	9 W.G .144	5 1/32" .156	8 W.G .160	1 1/4" .172	7 W.G .176	3 1/16" .187	6 W.G .192	1 1/4" .203	Ext. Diam. of Tubes inches
1'169	1'265	1'291	1'381	1'407	1'490	1'519	1'595	1'625	1'695	1
1'504	1'634	1'668	1'790	1'826	1'940	1'979	2'086	2'127	2'227	1 1/4
1'839	2'002	2'045	2'199	2'245	2'390	2'440	2'577	2'630	2'759	1 1/2
2'174	2'370	2'422	2'608	2'664	2'840	2'901	3'068	3'133	3'290	1 3/4
2'509	2'738	2'799	3'017	3'083	3'290	3'362	3'559	3'635	3'822	2
2'844	3'106	3'176	3'426	3'502	3'740	3'823	4'050	4'138	4'354	2 1/4
3'179	3'474	3'553	3'835	3'921	4'190	4'283	4'541	4'640	4'886	2 1/2
3'514	3'843	3'930	4'244	4'340	4'640	4'744	5'031	5'143	5'417	2 3/4
3'850	4'211	4'307	4'653	4'758	5'090	5'205	5'522	5'646	5'949	3
4'185	4'579	4'684	5'062	5'177	5'540	5'666	6'013	6'148	6'481	3 1/4
4'520	4'947	5'061	5'471	5'596	5'990	6'126	6'504	6'651	7'013	3 1/2
4'855	5'315	5'438	5'880	6'015	6'440	6'587	6'995	7'154	7'545	3 3/4
5'190	5'683	5'815	6'289	6'434	6'890	7'048	7'486	7'656	8'076	4
5'525	6'051	6'192	6'699	6'853	7'340	7'509	7'977	8'159	8'608	4 1/4
5'860	6'420	6'569	7'108	7'272	7'790	7'970	8'468	8'662	9'140	4 1/2
6'195	6'788	6'946	7'517	7'691	8'240	8'430	8'958	9'164	9'672	4 3/4
6'530	7'156	7'323	7'926	8'109	8'690	8'891	9'449	9'667	10'203	5
6'865	7'524	7'700	8'335	8'528	9'140	9'352	9'940	10'170	10'735	5 1/4
7'201	7'892	8'077	8'744	8'947	9'590	9'813	10'431	10'672	11'267	5 1/2
7'536	8'260	8'454	9'153	9'366	10'040	10'273	10'922	11'175	11'799	5 3/4
7'871	8'628	8'831	9'562	9'785	10'490	10'734	11'413	11'678	12'330	6
8'206	8'997	9'208	9'971	10'204	10'940	11'195	11'904	12'180	12'862	6 1/4
8'541	9'365	9'585	10'380	10'623	11'390	11'656	12'395	12'683	13'394	6 1/2
8'876	9'733	9'962	10'789	11'042	11'840	12'117	12'885	13'186	13'926	6 3/4
9'211	10'101	10'339	11'108	11'460	12'290	12'577	13'376	13'688	14'458	7
9'546	10'469	10'716	11'007	11'879	12'740	13'038	13'807	14'191	14'989	7 1/4
9'881	10'837	11'093	12'017	12'208	13'190	13'499	14'358	14'693	15'521	7 1/2
10'216	11'206	11'470	12'426	12'717	13'640	13'960	14'849	15'196	16'053	7 3/4
10'552	11'574	11'847	12'835	13'136	14'000	14'420	15'340	15'699	16'585	8
10'887	11'942	12'224	13'244	13'555	14'540	14'881	15'831	16'201	17'116	8 1/4
11'222	12'310	12'601	13'653	13'974	14'990	15'342	16'322	16'704	17'648	8 1/2
11'557	12'678	12'978	14'062	14'393	15'440	15'803	16'812	17'207	18'180	8 3/4
11'892	13'046	13'355	14'471	14'811	15'890	16'263	17'303	17'709	18'712	9
12'227	13'414	13'732	14'880	15'230	16'340	16'724	17'794	18'212	19'244	9 1/4
12'562	13'783	14'109	15'289	15'649	16'790	17'185	18'285	18'715	19'775	9 1/2
12'897	14'151	14'486	15'698	16'068	17'240	17'646	18'776	19'217	20'307	9 3/4
13'232	14'519	14'863	16'107	16'487	17'690	18'107	19'267	19'720	20'839	10
13'567	14'887	15'240	16'516	16'906	18'140	18'567	19'758	20'223	21'371	10 1/4
13'903	15'255	15'617	16'925	17'325	18'590	19'028	20'249	20'725	21'902	10 1/2
14'238	15'623	15'994	17'335	17'744	19'040	19'489	20'739	21'228	22'434	10 3/4

under 1/4" add as under.

0'251	0'276	0'283	0'307	0'314	0'337	0'346	0'368	0'377	0'399	3/16
0'168	0'184	0'188	0'205	0'209	0'225	0'230	0'245	0'251	0'266	1/8
0'084	0'092	0'094	0'102	0'105	0'112	0'115	0'123	0'126	0'133	1/16

weights as above and add as under.

'343	'414	'434	'511	'536	'619	'649	'736	'772	'864	
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multiply weight in lbs. per foot by 1'488.



STEWARTS AND LLOYDS, LIMITED.

L & L

THEORETICAL WEIGHTS OF WEIGHT PER

Ext. Diam. of Tubes, Inches	THICKNESS OF TUBES IN FRACTIONS, WIRE									
	5 W.G '212	7/32" '219	4 W.G '232	1/4" '234	1/4" '250	3 W.G '252	2 W.G '276	9/32" '281	1 W.G '300	5/16" '312
1	1'749	1'790	1'866	1'879	1'963	1'974	2'003	2'117	2'199	2'250
1 1/4	2'304	2'362	2'473	2'493	2'618	2'634	2'815	2'853	2'984	3'068
1 1/2	2'859	2'935	3'081	3'106	3'272	3'293	3'538	3'590	3'770	3'886
1 3/4	3'414	3'508	3'688	3'720	3'927	3'953	4'260	4'326	4'555	4'704
2	3'969	4'080	4'295	4'334	4'581	4'613	4'983	5'062	5'341	5'522
2 1/4	4'525	4'653	4'903	4'947	5'236	5'273	5'705	5'799	6'126	6'340
2 1/2	5'080	5'226	5'510	5'561	5'890	5'932	6'428	6'535	6'911	7'159
2 3/4	5'635	5'799	6'118	6'174	6'545	6'592	7'151	7'271	7'697	7'977
3	6'190	6'371	6'725	6'788	7'199	7'252	7'873	8'007	8'482	8'795
3 1/4	6'745	6'944	7'332	7'402	7'854	7'911	8'596	8'744	9'268	9'613
3 1/2	7'300	7'517	7'940	8'015	8'508	8'571	9'318	9'480	10'053	10'431
3 3/4	7'855	8'089	8'547	8'629	9'163	9'231	10'041	10'216	10'838	11'249
4	8'410	8'662	9'154	9'242	9'817	9'891	10'763	10'953	11'624	12'067
4 1/4	8'965	9'235	9'762	9'856	10'472	10'550	11'486	11'689	12'409	12'885
4 1/2	9'520	9'807	10'369	10'470	11'126	11'210	12'209	12'425	13'195	13'704
4 3/4	10'075	10'380	10'976	11'083	11'781	11'870	12'931	13'162	13'980	14'522
5	10'630	10'953	11'584	11'697	12'435	12'530	13'654	13'898	14'765	15'340
5 1/4	11'185	11'526	12'191	12'310	13'090	13'189	14'376	14'634	15'551	16'158
5 1/2	11'740	12'098	12'799	12'924	13'744	13'849	15'099	15'371	16'336	16'976
5 3/4	12'295	12'671	13'406	13'538	14'399	14'509	15'822	16'107	17'122	17'794
6	12'850	13'244	14'013	14'151	15'053	15'168	16'544	16'843	17'907	18'612
6 1/4	13'405	13'816	14'621	14'765	15'708	15'828	17'267	17'580	18'692	19'430
6 1/2	13'960	14'389	15'228	15'378	16'362	16'488	17'989	18'316	19'478	20'249
6 3/4	14'515	14'962	15'836	15'992	17'017	17'148	18'712	19'052	20'263	21'067
7	15'070	15'534	16'443	16'606	17'671	17'807	19'434	19'789	21'049	21'885
7 1/4	15'625	16'107	17'050	17'219	18'326	18'467	20'157	20'525	21'834	22'703
7 1/2	16'180	16'680	17'658	17'833	18'980	19'127	20'880	21'261	22'619	23'521
7 3/4	16'735	17'253	18'265	18'446	19'635	19'786	21'602	21'998	23'405	24'339
8	17'200	17'825	18'872	19'060	20'290	20'446	22'325	22'734	24'190	25'157
8 1/4	17'845	18'398	19'480	19'674	20'944	21'106	23'047	23'470	24'976	25'975
8 1/2	18'400	18'971	20'087	20'287	21'598	21'766	23'770	24'207	25'761	26'794
8 3/4	18'955	19'543	20'695	20'901	22'253	22'425	24'492	24'943	26'546	27'612
9	19'510	20'116	21'302	21'514	22'907	23'085	25'215	25'679	27'332	28'430
9 1/4	20'065	20'689	21'909	22'128	23'562	23'745	25'938	26'416	28'117	29'248
9 1/2	20'620	21'261	22'517	22'742	24'216	24'405	26'660	27'152	28'903	30'066
9 3/4	21'175	21'834	23'124	23'355	24'871	25'064	27'383	27'888	29'688	30'884
10	21'730	22'407	23'731	23'969	25'525	25'724	28'105	28'625	30'473	31'702
10 1/4	22'285	22'980	24'339	24'582	26'180	26'384	28'828	29'361	31'259	32'520
10 1/2	22'840	23'552	24'946	25'196	26'834	27'043	29'550	30'097	32'044	33'339
10 3/4	23'395	24'125	25'554	25'810	27'489	27'703	30'273	30'834	32'830	34'157

For each Fraction of an Inch

3/16	0'416	0'430	0'456	0'460	0'491	0'495	0'542	0'552	0'589	0'614
1/8	0'278	0'286	0'304	0'307	0'327	0'330	0'361	0'368	0'393	0'409
1/16	0'139	0'143	0'152	0'153	0'164	0'165	0'181	0'184	0'196	0'205

If Inside Diameter of Tube is given, take

'941	1'002	1'127	1'150	1'309	1'330	1'595	1'657	1'885	2'045
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To obtain weight of Tubes in Kilos per Metre,



STEWARTS AND LLOYDS, LIMITED.

L & L

WROUGHT-IRON TUBES.

FOOT IN LBS.

GAUGES AND DECIMALS OF AN INCH

$\frac{11}{32}''$	$\frac{3}{8}''$	$\frac{13}{32}''$	$\frac{7}{16}''$	$\frac{15}{32}''$	$\frac{1}{2}''$	$\frac{17}{32}''$	$\frac{9}{16}''$	$\frac{19}{32}''$	$\frac{5}{8}''$	Ext. Diam. of Tubes. Inches
.344	.375	.406	.437	.469	.500	.531	.562	.594	.625	
2'362	2'454	2'526	2'577	2'608	2'618	...	...	...	...	1
3'262	3'436	3'590	3'722	3'835	3'927	3.999	...	...	...	1 $\frac{1}{4}$
4'162	4'418	4'653	4'868	5'062	5'236	5'389	5'522	5'635	5'727	1 $\frac{1}{2}$
5'062	5'400	5'717	6'013	6'290	6'545	6'780	6'995	7'189	7'363	1 $\frac{3}{4}$
5'962	6'381	6'780	7'159	7'517	7'854	8'171	8'468	8'744	8'999	2
6'862	7'363	7'844	8'304	8'744	9'163	9'562	9'940	10'298	10'636	2 $\frac{1}{2}$
7'762	8'345	8'907	9'449	9'971	10'472	10'953	11'413	11'853	12'272	2 $\frac{3}{2}$
8'662	9'327	9'971	10'595	11'198	11'781	12'344	12'885	13'407	13'908	2 $\frac{3}{4}$
9'562	10'308	11'035	11'740	12'425	13'090	13'734	14'358	14'965	15'544	3
10'462	11'290	12'098	12'885	13'653	14'399	15'125	15'831	16'516	17'181	3 $\frac{1}{4}$
11'362	12'272	13'162	14'031	14'880	15'708	16'516	17'303	18'070	18'817	3 $\frac{1}{2}$
12'262	13'254	14'225	15'176	16'107	17'017	17'907	18'776	19'625	20'453	3 $\frac{3}{4}$
13'162	14'235	15'289	16'322	17'334	18'326	19'298	20'249	21'179	22'089	4
14'062	15'217	16'352	17'467	18'561	19'635	20'689	21'721	22'734	23'726	4 $\frac{1}{4}$
14'962	16'199	17'416	18'612	19'789	20'944	22'079	23'194	24'288	25'362	4 $\frac{1}{2}$
15'862	17'181	18'480	19'758	21'016	22'253	23'470	24'666	25'843	26'998	4 $\frac{3}{4}$
16'762	18'162	19'543	20'903	22'243	23'562	24'861	26'139	27'397	28'634	5
17'662	19'144	20'607	22'048	23'470	24'871	26'252	27'612	28'952	30'271	5 $\frac{1}{4}$
18'561	20'126	21'670	23'194	24'697	26'180	27'643	29'084	30'506	31'907	5 $\frac{1}{2}$
19'461	21'108	22'734	24'339	25'925	27'489	29'033	30'557	32'061	33'543	5 $\frac{3}{4}$
20'361	22'089	23'707	25'485	27'152	28'798	30'424	32'030	33'615	35'179	6
21'261	23'071	24'861	26'630	28'379	30'107	31'815	33'502	35'169	36'816	6 $\frac{1}{4}$
22'161	24'053	25'925	27'775	29'606	31'416	33'206	34'975	36'724	38'452	6 $\frac{1}{2}$
23'061	25'035	26'988	28'921	30'813	32'725	34'597	36'447	38'278	40'088	6 $\frac{3}{4}$
23'961	26'016	28'052	30'066	32'067	34'034	35'988	37'920	39'833	41'724	7
24'861	26'998	29'115	31'211	33'288	35'343	37'378	39'393	41'387	43'361	7 $\frac{1}{4}$
25'761	27'980	30'179	32'357	34'515	36'652	38'769	40'865	42'942	44'997	7 $\frac{1}{2}$
26'661	28'962	31'243	33'502	35'742	37'961	40'160	42'338	44'496	46'633	7 $\frac{3}{4}$
27'561	29'943	32'306	34'648	36'969	39'270	41'551	43'811	46'051	48'269	8
28'461	30'925	33'370	35'793	38'197	40'579	42'942	45'283	47'605	49'906	8 $\frac{1}{4}$
29'361	31'907	34'433	36'938	39'424	41'888	44'333	46'756	49'169	51'542	8 $\frac{1}{2}$
30'261	32'889	35'497	38'084	40'651	43'197	45'723	48'228	50'714	53'178	8 $\frac{3}{4}$
31'161	33'875	36'560	39'229	41'878	44'506	47'114	49'701	52'268	54'814	9
32'061	34'852	37'624	40'374	43'105	45'815	48'505	51'174	53'823	56'451	9 $\frac{1}{4}$
32'961	35'834	38'688	41'520	44'333	47'124	49'896	52'646	55'377	58'087	9 $\frac{1}{2}$
33'861	36'816	39'751	42'665	45'500	48'433	51'287	54'119	56'932	59'723	9 $\frac{3}{4}$
34'761	37'797	40'815	43'811	46'787	49'742	52'677	55'592	58'486	61'359	10
35'661	38'779	41'878	44'956	48'014	51'051	54'068	57'064	60'041	62'996	10 $\frac{1}{4}$
36'560	39'761	42'942	46'101	49'241	52'360	55'459	58'537	61'595	64'632	10 $\frac{1}{2}$
37'460	40'743	44'005	47'247	50'469	53'669	56'850	60'009	63'150	66'268	10 $\frac{3}{4}$

under $\frac{1}{4}''$ add as under.

0'675	0'736	0'798	0'859	0'920	0'982	1'043	1'104	1'166	1'227	$\frac{3}{16}$
0'450	0'491	0'532	0'573	0'614	0'654	0'695	0'736	0'777	0'818	$\frac{1}{8}$
0'225	0'245	0'266	0'286	0'307	0'327	0'348	0'368	0'389	0'409	$\frac{1}{16}$

weights as above and add as under.

2'475	2'945	3'457	4'009	4'602	5'236	5'911	6'627	7'384	8'181
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multiply weight in lbs. per foot by 1'488.

BOILER TUBE FERRULES.

These Ferrules are made from Lapwelded Wrought Iron and Steel Tube, and have a taper of $\frac{1}{16}$ " in diameter in 1" of length.

The outside diameter of ferrule at centre is the same as bore of tube into which it is intended to be driven.

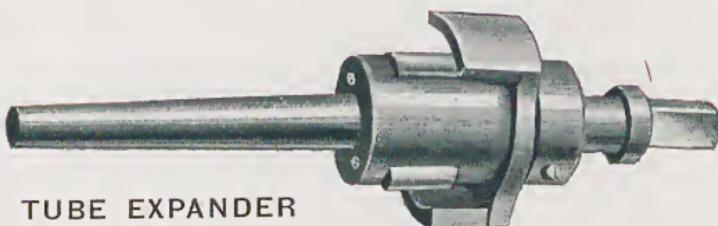
B1. Are tapered under hammer, and have corners buffed.

B2. Are tapered in lathe by turning on outside.



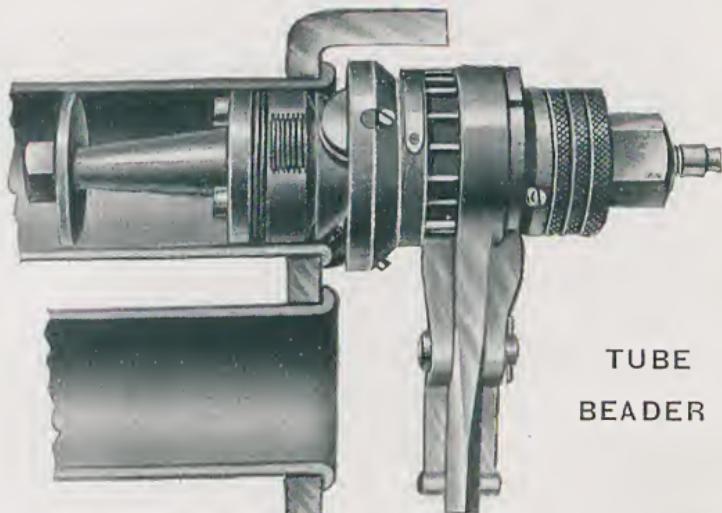
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L & L

BOILER TUBE TOOLS.

TUBE EXPANDER

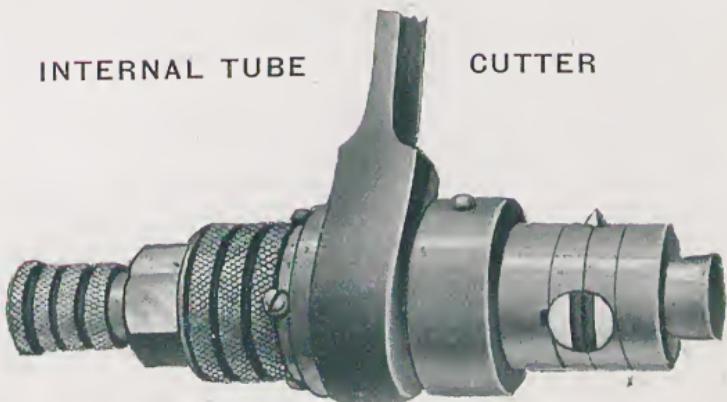
No. 253

TUBE
BEADER

No. 254

INTERNAL TUBE

CUTTER



No. 255

PRICES ON APPLICATION.



STEWARTS AND LLOYDS, LIMITED.

L & L

TUBE FITTERS' TOOLS.

No. 184. SOLID DIE STOCK AND GUIDE



No. 185. ADJUSTABLE TAPER DIE STOCK AND GUIDE



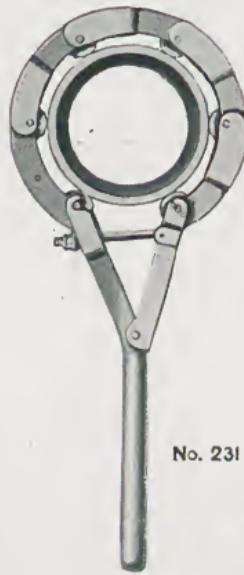
No. 186. ADJUSTABLE DIE STOCK



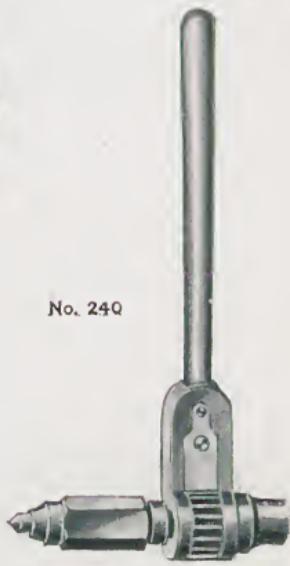
No. 187. ADJUSTABLE DIE STOCK



CLYBURN SPANNER

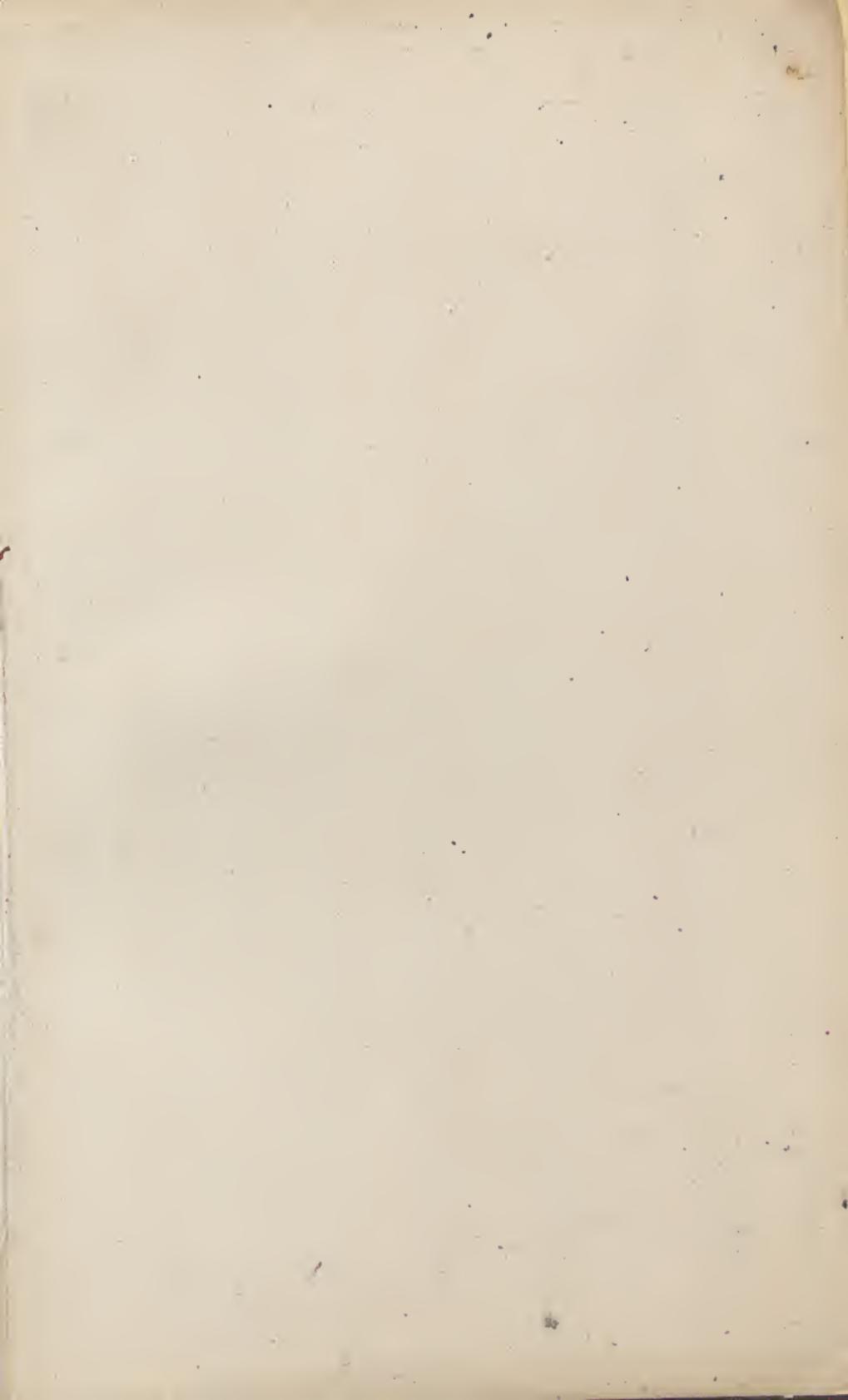
ADJUSTABLE
TUBE WHEEL CUTTER

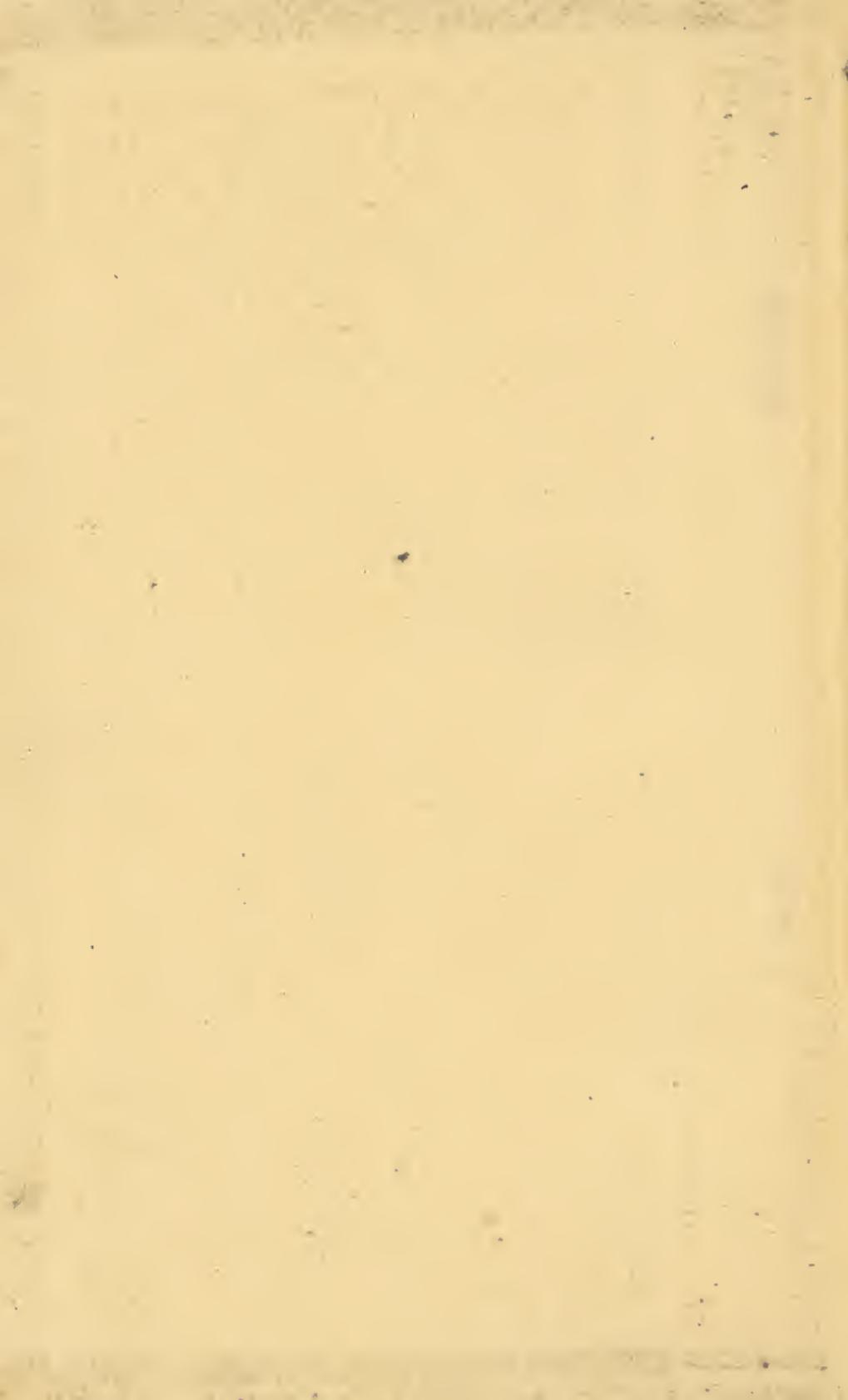
No. 240

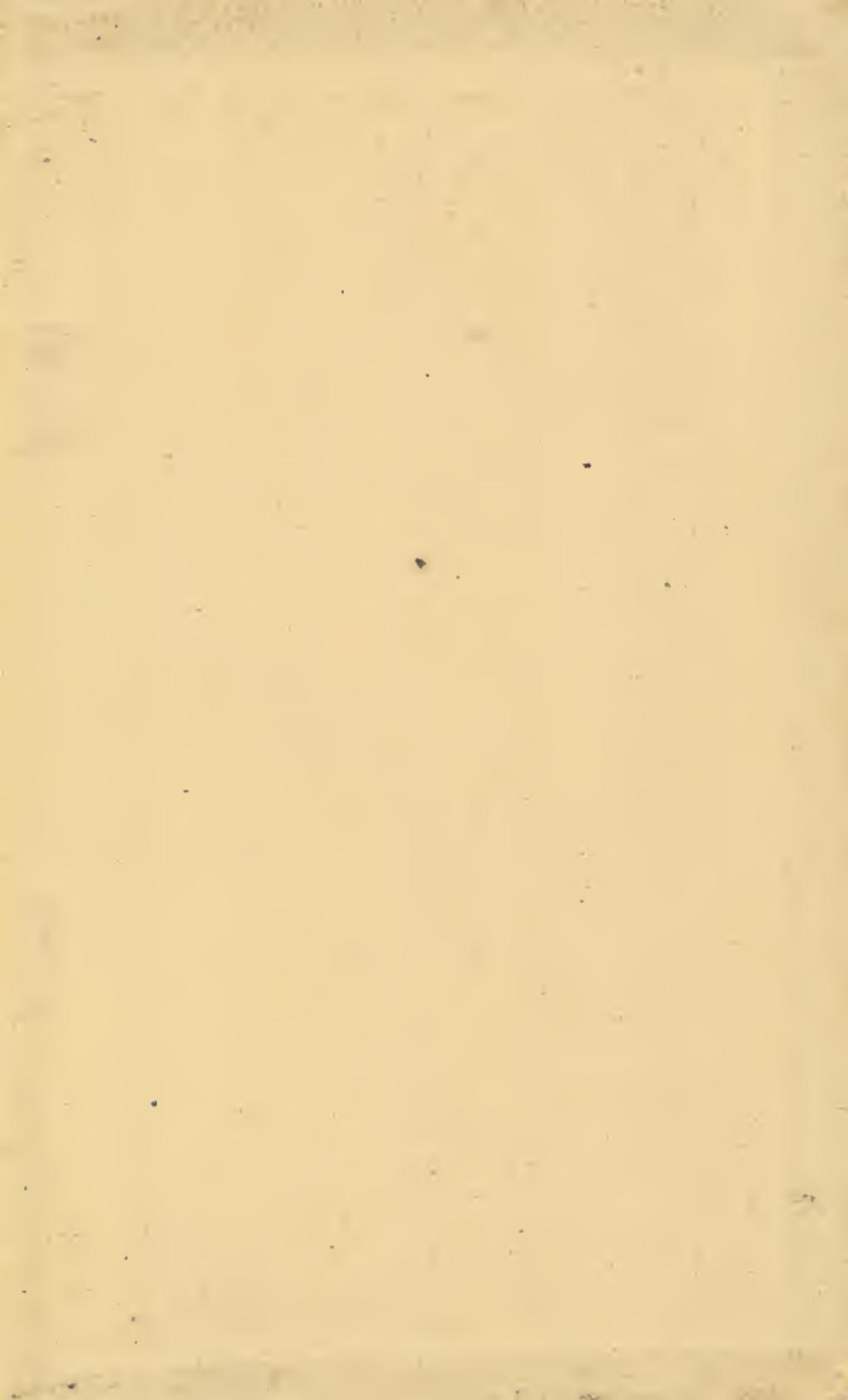


RATCHET BRACE

PRICES ON APPLICATION.







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